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# **PALO VERDE NUCLEAR GENERATING STATION**



## **ENVIRONMENTAL REPORT OPERATING LICENSE STAGE**

**VOLUME I**

**ARIZONA PUBLIC SERVICE COMPANY  
PROJECT MANAGER AND OPERATING AGENT**

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## FOREWORD

The Environmental Report - Operating License Stage (ER-OL) for the Palo Verde Nuclear Generating Station (PVNGS) Units 1, 2 & 3 is part of the joint application for licenses authorizing Arizona Public Service Company to construct, operate and maintain PVNGS on its own behalf and as agent for all other joint applicants.

Palo Verde Nuclear Generating Station, including each of Palo Verde Units 1, 2 and 3, is currently jointly owned by the joint-applicants listed below, sometimes referred to as "Participants," as tenants in common with undivided ownership interests in the respective percentages hereinafter set forth, all in accordance with the Arizona Nuclear Power Project Participation Agreement, dated as of August 23, 1973, as amended by Amendment Nos. 1 through 4.

<u>Joint Applicants</u>	<u>Undivided Interest</u>
Arizona Public Service Company (APS)	29.1%
Salt River Project Agricultural Improvement and Power District (SRP)	29.1%
Southern California Edison Company (SCE)	15.8%
El Paso Electric Company (EPE)	15.8%
Public Service Company of New Mexico (PNM)	10.2%

However, pursuant to an agreement dated August 18, 1977, between SRP and the Department of Water and Power of the City of Los Angeles (LADWP), SRP will transfer to LADWP, and LADWP will acquire from SRP, a 5.7% undivided ownership interest as a tenant in common with the other Participants in the Palo Verde Nuclear Generating Station, including each of Palo Verde Units 1, 2 and 3, at such time as Palo Verde Unit 1 is placed into commercial operation (i.e., when it is deemed to be available

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as a reliable source of electric generation). For this reason, LADWP has been included in the descriptions of the need for PVNGS (Chapter 1) and the benefits derived from PVNGS (Chapter 8).

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In addition, pursuant to an assignment agreement executed as of August 14, 1981 by SRP and the Southern California Public Power Authority (SCPPA); SRP will transfer to SCPPA, and SCPPA will acquire from SRP, a 5.91% undivided ownership interest as a tenant in common with the other Participants in the Palo Verde Nuclear Generating Station, including each of Palo Verde Units 1, 2 and 3, following (a) receipt of the approval of such transfer and acquisition by the Commission and (b) the sale by SCPPA of revenue bonds or notes, or any combination thereof, in an aggregate principal amount at least sufficient to make the payment required under the terms of the Assignment Agreement. SCPPA is a public entity created pursuant to Section 6500 et seq. of the California Government Code and the Joint Powers Agreement among its members dated as of November 1, 1980. The members of SCPPA are the California Cities of Anaheim, Azusa, Banning, Burbank, Colton, Glendale, Los Angeles, Pasadena, Riverside and Vernon, and the Imperial Irrigation District. Because of the transfer to SCPPA, load, resource and energy mix data applicable to the members of SCPPA have been included in the descriptions of the need for PVNGS (Chapter 1).

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In accordance with an assignment agreement executed as of December 1, 1981 by EPE and the M-S-R Public Power Agency (MSR), EPE will transfer to MSR, and MSR will acquire from EPE, a 3.95% undivided ownership interest as a tenant in common with the other Participants in the Palo Verde Nuclear Generating Station, including each of Palo Verde Units 1, 2 and 3, following (a) receipt of the approval of such transfer and acquisition by the Commission and any other state or federal agencies as required and (b) the sale by MSR of revenue bonds



or notes, or any combination thereof, in an aggregate principal amount at least sufficient to make the payment required under the terms of the Assignment Agreement and (c) execution of a contract for transmission services. MSR is a public entity created pursuant to Section 6500 et seq. of the California Government Code and the Joint Powers Agreement among its members dated as of April 29, 1980. The members of MSR are the California Cities of Santa Clara and Redding and the Modesto Irrigation District. Because of the transfer to MSR, load, resource, and energy mix data applicable to the members of MSR have been included in the descriptions of the need for PVNGS (Chapter 1).

The PVNGS Units 1, 2 and 3 are scheduled for commercial operation in May 1983, May 1984, and May 1986, respectively.

The ER-OL presents a description of PVNGS and its environmental impacts, as well as changes to the description since the Environmental Report - Construction Permit Stage (ER-CP), Docket Numbers STN-50-528, 529, and 530 and Final Environmental Statement (FES) NUREG-75/078. For those instances in which there

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have been no changes, the reader is so informed and the ER-CP is briefly summarized.

The ER-OL adheres to the format, content, style, composition, and physical specifications required by NRC Regulatory Guide 4.2, Revision 2, as modified by the August 24, 1976 Errata sheet.

This environmental report incorporates by reference applicable portions of the PVNGS Final Safety Analysis Report (FSAR) to the extent allowed by Regulatory Guide 4.2 for reference to the FSAR or the Preliminary Safety Analysis Report (PSAR).

All text pages are numbered by chapter and section as required by Regulatory Guide 4.2. Tables and illustrations are numbered in a similar manner; e.g. table 1.1-1 is the first table in section 1.1. Each table is placed in the text following the page on which it is first referenced. Figures are placed at the end of each section.

The engineering symbols used on piping and instrumentation diagrams (P&ID's) are shown on figure F-1. Standards used for editorial abbreviations and symbols are the latest editions of the following American National Standards Institute publications: ANSI-Y1.1, Abbreviations; ANSI-Y10.5, Letter Symbols for Quantities used in Electrical Science and Electrical Engineering; and ANSI-Y10.9, Letter Symbols for Units used in Science and Technology.

The ER-OL includes answers to NRC requests for additional information in the NRC letters from Mr. D. G. Eisenhower to Mr. E. E. Van Brunt, Jr., dated June 18, 1980, and from Mr. R. L. Tedesco to Mr. E. E. Van Brunt, Jr., dated February 13, 1981 and April 17, 1981. The questions and responses or locations of responses are provided in Appendix A of the appropriate chapter

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of the ER-OL. The cross-reference list from NRC question number to ER-OL question number is as noted below:

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1A.9

450.1

2A.15



Table 1.1-1

LOADS AND RESOURCES SUMMARY  
1964 THROUGH 1992 (Sheet 1 of 7)

PVNGS - 1,2&3 PARTICIPANTS

Year	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
1.1.1 Load characteristics, demand (MW)																													
Company peak demand	9602	10351	11020	12049	12907	13869	14793	16441	17677	18444	18442	18620	19999	20375	21706	22210	22803	24091	25090	26179	27255	28339	29390	30488	31528	33111	34217	35411	36630
Firm sales outside PVNGS -1,2 & 3(a)	129	65	46	50	60	68	69	151	171	284	345	384	369	917	551	726	830	931	1033	764	742	776	810	848	886	414	430	447	464
Annual peak demand (PVNGS + FSO)	9731	10416	11066	12099	12967	13937	14862	16592	17848	18728	18787	19004	20368	21292	22257	22936	23633	25022	26123	26943	27997	29115	30200	31336	32414	33525	34647	35858	37094
Firm purchases outside PVNGS -1,2 & 3(a)	87	157	205	293	741	660	801	780	741	806	926	792	773	910	989	862	777	989	777	777	1036	1036	1036	1036	1036	1036	1036	1036	1036
Adjusted annual peak demand (APD-FPO)	9644	10259	10861	11806	12226	13277	14061	15812	17107	17922	17861	18212	19595	20382	21268	22084	22856	24033	25346	26166	26961	28079	29164	30300	31378	32489	33611	34822	36058
1.1.1 Load characteristics, energy (GWh)																													
Company energy	52426	56702	61913	66207	71455	77109	82305	87412	93411	97298	94151	96141	100248	103779	107236	110699	116294	121807	127155	133201	139499	145536	151921	157945	163581	171117	179747	185974	192750
Firm energy sales outside PVNGS (a)	1620	784	685	860	834	1201	1318	1962	2640	3323	3163	3653	4667	7719	5296	7988	8466	8955	9626	8005	7457	7377	7707	7592	7423	4457	4839	4948	5170
Annual energy (PVNGS +FES)	54046	57486	62598	67067	72289	78310	83623	89374	96051	100621	97314	99794	104915	111498	112532	118687	124760	130762	136781	141206	146956	152913	159628	165537	171004	177574	184586	190922	197920
Firm energy purchases outside PVNGS (a)	81	254	306	405	577	844	908	1372	825	965	739	672	634	786	1198	1098	618	618	618	618	618	618	618	618	618	618	618	618	618
Adjusted annual energy (AE - FEP)	53965	57232	62292	66662	71712	77466	82715	88002	95226	101586	96575	99122	104281	110712	111334	117589	124142	130144	136163	140588	146338	152295	159010	164919	170386	176956	183968	190304	197302
1.1.2 Power supply (MW)																													
Installed resources	11853	12611	13582	15084	15464	16579	18108	18591	20660	22403	23653	24515	25433	26271	26817	27067	28289	29007	31575	32044	33661	34103	35674	36699	38603	39417	40854	41661	42881
Nonfirm purchases (a)	47	147	148	140	135	130	124	123	348	170	365	369	179	179	179	239	339	419	178	178	178	56	56	56	56	56	56	56	56
Noncommitted purchases (a)																											300	300	600
Nonfirm sales (a)	3	3	3	3	3	3	3	2	2	2	2				15	16	17	16	183	108	174								
Nonfirm sales - Layoff (a)																		100							170		202		
Capability (IR+NFP-NFS)	11897	12755	13727	15221	15596	16706	18229	18712	21006	22571	24016	24884	25612	26450	26981	27290	28611	29310	31570	32114	33665	34159	35730	36755	38489	39473	41008	42017	43537
1.1.3 Capacity requirement																													
Reserve (C-AAPD) (MW)	2253	2496	2866	3415	3370	3429	4168	2900	3899	4649	6155	6672	6017	6068	5713	5206	5755	5277	6224	5948	6704	6080	6566	6455	7111	6984	7397	7195	7479
Reserve margin (%)	23.4	24.3	26.4	28.9	27.6	25.8	29.6	18.3	22.8	25.9	34.5	36.6	30.7	29.8	26.9	23.6	25.2	22.0	24.6	22.7	24.9	21.7	22.5	21.3	22.7	21.5	22.0	20.7	20.7

a. Sales and purchases to Companies other than the PVNGS-1,2&3 participants.

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Table 1.1-1  
LOADS AND RESOURCES SUMMARY  
1964 THROUGH 1992 (Sheet 2 of 7)

ARIZONA PUBLIC SERVICE COMPANY

Year	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
1.1.1 Load characteristics, demand (MW)																													
Company peak demand	775	805	875	888	969	1130	1260	1349	1587	1703	1898	1912	1987	2083	2212	2343	2541	2736	2874	3051	3215	3384	3547	3728	3905	4595	4787	4970	5151
Firm sales outside PVNGS 1,2&3	100	32	13	12	13	13	13	58	72	108	134	156	204	290	337	346	372	385	400	411	423	439	455	472	489	0	0	0	0
Firm sales within PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total firm sales (TFS)	100	32	13	12	13	13	13	58	72	108	134	156	204	290	337	346	372	385	400	411	423	439	455	472	489	0	0	0	0
Annual peak demand (CPD+TFS)	875	837	888	900	982	1143	1273	1407	1659	1811	2032	2068	2191	2373	2549	2689	2913	3121	3274	3462	3638	3823	4002	4200	4394	4595	4787	4970	5151
Firm purchases outside PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
Firm purchases within PVNGS 1,2&3	(67)	(59)	(42)	(58)	(54)	(56)	(92)	(96)	(113)	(142)	(171)	(171)	(152)	(152)	(183)	(195)	(203)	(212)	(222)	(231)	(241)	(251)	(262)	(273)	(284)	(296)	(307)	(319)	(331)
Total firm purchases (TFP)	(67)	(59)	(42)	(58)	(54)	(56)	(92)	(96)	(113)	(142)	(171)	(171)	(158)	(158)	(189)	(201)	(209)	(218)	(228)	(237)	(247)	(257)	(268)	(279)	(290)	(302)	(313)	(325)	(337)
Adjusted annual peak demand (APD-TFP-ID)	808	778	846	842	928	1087	1181	1311	1546	1669	1861	1897	2033	2215	2360	2488	2704	2903	3046	3225	3391	3566	3734	3921	4104	4293	4474	4645	4814
1.1.1.1 Load characteristics, energy (GWh)																													
Company energy	4063	4134	4507	4609	4869	5405	5835	6394	7470	8207	8795	8596	9019	9651	10459	10905	11907	13032	13863	14881	15772	16721	17564	18485	19490	24068	25333	25992	26983
Firm energy sales outside PVNGS 1,2&3	927	276	72	63	73	82	83	358	468	576	702	1269	1586	1885	1691	2243	2507	2629	2738	2773	2879	2991	3109	3244	3379	-	-	-	-
Annual Energy (CE+FES)	4990	4410	4579	4672	4942	5487	5918	6752	7938	8783	9497	9865	10605	11536	12150	13148	14414	15661	16601	17654	18651	19712	20673	21729	22869	24068	25333	25992	26983
Firm energy purchases outside PVNGS 1,2&3												(32)	(32)	(32)	(32)	(32)	(32)	(32)	(32)	(32)	(32)	(32)	(32)	(32)	(32)	(32)	(32)	(32)	(32)
Adjusted annual energy (AE-FEP)	4990	4410	4579	4672	4942	5487	5918	6752	7938	8783	9497	9865	10573	11504	12118	13116	14382	15629	16569	17622	18619	19680	20641	21697	22837	24036	25301	25960	26951
1.1.1.2 Power supply (MW)																													
Installed resources	1267	1270	1262	1255	1255	1381	1501	1540	1734	1981	2139	2235	2565	2560	2795	2795	3037	3384	3740	3786	4142	4242	4598	4598	5076	5076	5554	5554	5854
Nonfirm purchases outside PVNGS 1,2&3	0	0	0	0	0	0	0	0	175	0	127	100	16	16	16	16	16	16	15	15	15	0	0	0	0	0	0	0	0
Nonfirm purchases within PVNGS 1,2&3	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Total nonfirm purchases	62	62	62	62	62	62	62	62	237	62	189	162	78	78	78	78	78	78	77	77	77	62	62	62	62	62	62	62	62
Nonfirm sales outside PVNGS 1,2&3	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(2)	(2)	(2)	(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nonfirm sales within PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nonfirm sales - Layoff	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(100)	0	0	0	0	0	0	(170)	0	(202)	0	0
Total nonfirm sales	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(2)	(2)	(2)	(2)	0	0	0	0	0	0	(100)	0	0	0	0	0	0	(170)	0	(202)	0	0
Capability (IR+NFP-NFS)	1326	1329	1321	1314	1314	1440	1560	1600	1969	2041	2326	2397	2643	2638	2873	2873	3115	3362	3817	3863	4219	4304	4660	4660	4968	5138	5414	5616	5916
1.1.1.3 Capacity requirement																													
Reserve (C-AAPD) (MW)	518	551	475	472	386	353	379	289	423	372	465	500	610	423	513	385	411	459	771	638	828	738	926	739	864	845	940	971	1102
Percent margin (100xR/AAPD) (%)	64.1	70.8	56.1	56.1	41.6	32.5	32.1	22.0	27.4	22.3	25.0	26.4	30.0	19.1	21.7	15.5	15.2	15.8	25.3	19.8	24.4	20.7	24.8	18.8	21.1	19.7	21.0	20.9	22.9

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LOS ANGELES DEPARTMENT OF WATER AND POWER

Year	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
1.1.1 Load characteristics, demand (MW)																													
Company peak demand	2123	2303	2407	2679	2772	2935	3107	3439	3630	3679	3500	3594	3809	3778	4144	4016	4157	4259	4366	4488	4618	4772	4923	5077	5230	5383	5537	5691	5846
Firm sales outside PVNGS 1,2&3	0	0	0	0	3	3	3	3	3	78	78	78	3	75	11	100	120	120	120	0	0	0	0	0	0	0	0	0	0
Firm sales within PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total firm sales (TFS)	0	0	0	0	3	3	3	3	3	78	78	78	3	75	11	100	120	120	120	0	0	0	0	0	0	0	0	0	0
Annual peak demand (CPD+TFS)	2123	2303	2407	2679	2775	2938	3110	3442	3633	3757	3578	3672	3812	3853	4155	4116	4277	4379	4486	4488	4618	4772	4923	5077	5230	5383	5537	5691	5846
Firm purchases outside PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Firm purchases within PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total firm purchases (TFP)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Adjusted annual peak demand (APD-TFP-ID)	2123	2303	2407	2679	2775	2938	3110	3442	3633	3757	3578	3672	3812	3853	4155	4116	4277	4379	4486	4488	4618	4772	4923	5077	5230	5383	5537	5691	5846
1.1.1 Load characteristics, energy (GWh)																													
Company energy	11063	12037	13093	14091	15123	16158	17049	17803	18800	18879	16818	17652	18800	18497	19462	19711	20536	20966	21499	22134	22902	23733	24596	25481	26436	27260	28149	29040	30015
Firm energy sales outside PVNGS 1,2&3	0	0	0	0	0	21	18	41	166	286	282	455	385	87	445	652	685	692	764	103	0	0	0	0	0	0	0	0	0
Annual Energy (CE+FES)	11063	12037	13093	14091	15123	16179	17067	17844	18966	19165	17100	18107	19185	18584	19907	20363	21221	21658	22263	22237	22902	23733	24596	25481	26436	27260	28149	29040	30015
Firm energy purchases outside PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Adjusted annual energy (AE-FEP)	11063	12037	13093	14091	15123	16179	17067	17844	18966	19165	17100	18107	19185	18584	19907	20363	21221	21658	22263	22237	22902	23733	24596	25481	26436	27260	28149	29040	30015
1.1.2 Power supply (MW)																													
Installed resoures	2475	2895	2800	3486	3683	3820	4027	3915	4130	4759	5311	5435	5720	5716	5672	5702	5707	5707	5707	5707	6167	6094	6090	6336	6582	6976	7222	7360	7350
Nonfirm purchases outside PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nonfirm purchases within PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total nonfirm purchases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nonfirm sales outside PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nonfirm sales within PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total nonfirm sales	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Noncommitted	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capability (IR+NFP-NFS)	2475	2895	2800	3486	3683	3820	4027	3915	4130	4759	5311	5435	5720	5716	5672	5702	5707	5707	5707	5707	6167	6094	6090	6336	6582	6976	7222	7360	7350
1.1.3 Capacity requirement																													
Reserve (C-AAPD) (MW)	352	592	393	807	908	882	917	473	497	1002	1733	1763	1908	1863	1517	1586	1425	1328	1221	1219	1549	1322	1167	1259	1352	1593	1586	1669	1504
Percent margin (100xR/AAPD) (%)	16.6	25.7	16.3	30.1	32.7	30.0	29.5	13.7	13.7	26.7	48.4	48.0	50.1	48.4	36.5	38.5	33.3	30.3	27.2	27.2	33.5	27.7	23.7	24.8	25.8	29.6	30.4	29.3	25.7

Table 1.1-1  
LOADS AND RESOURCES SUMMARY  
1964 THROUGH 1992 (Sheet 3 of 7)

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## EL PASO ELECTRIC COMPANY

Year		1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	
1.1.1	Load characteristics, demand (MW)																														
	Company peak demand	272	297	322	323	356	396	416	446	482	546	554	555	595	599	654	680	745	800	861	932	984	1,057	1,108	1,163	1,212	1,271	1,322	1,377	1,431	
	Firm sales outside PVNGS 1,2&3	29	33	33	38	44	52	53	55	61	72	84	85	82	58	36	38	40	45	48	52	54	56	58	60	63	65	67	68	70	
	Firm sales within PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Total firm sales (TFS)	29	33	33	38	44	52	53	55	61	72	84	85	82	58	36	38	40	45	48	52	54	56	58	60	63	65	67	68	70	
	Annual peak demand (CPD+TFS)	301	330	355	361	400	448	469	501	543	618	638	640	677	657	690	718	785	845	909	984	1,038	1,113	1,166	1,223	1,275	1,336	1,389	1,445	1,501	
	Firm purchases outside PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Firm purchases within PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Total firm purchases (TFP)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Adjusted annual peak demand (APD-TFP-ID)	301	330	355	361	400	448	469	501	543	618	638	640	677	657	690	718	785	845	909	984	1,038	1,113	1,166	1,223	1,275	1,336	1,389	1,445	1,501	
1.1.1	Load characteristics, energy (GWh)																														
	Company energy	1,520	1,606	1,708	1,823	1,938	2,135	2,252	2,422	2,643	2,866	2,901	2,996	3,160	3,299	3,424	3,616	3,913	4,206	4,591	4,924	5,274	5,610	6,350	6,617	6,536	6,846	7,125	7,423	7,713	
	Firm energy sales outside PVNGS 1,2&3	81	88	102	122	232	326	254	240	319	403	455	454	392	173	165	193	217	236	254	276	283	296	310	327	338	349	363	366	375	
	Annual energy (CE+FES)	1,601	1,694	1,810	1,945	2,170	2,461	2,506	2,662	2,962	3,269	3,356	3,450	3,552	3,472	3,589	3,809	4,130	4,442	4,845	5,200	5,557	5,906	6,660	6,944	6,874	7,195	7,488	7,789	8,088	
	Firm energy purchases outside PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Adjusted annual energy (AE-FEP)	1,601	1,694	1,810	1,945	2,170	2,461	2,506	2,662	2,962	3,269	3,356	3,450	3,552	3,472	3,589	3,809	4,130	4,442	4,845	5,200	5,557	5,906	6,660	6,944	6,874	7,195	7,488	7,789	8,088	
	1.1.2	Power supply (MW)																													
Installed resources		419	419	530	530	495	536	642	642	756	740	716	840	940	890	900	885	977	1,033	1,178	1,174	1,348	1,348	1,548	1,559	1,609	1,609	1,745	1,745	1,836	
Nonfirm purchases outside PVNGS 1,2&3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Nonfirm purchases within PVNGS 1,2&3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total nonfirm purchases		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Nonfirm sales outside PVNGS 1,2&3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Nonfirm sales within PVNGS 1,2&3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total nonfirm sales		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Noncommitted																															
Capability (IR+NFP-NFS)		419	419	530	530	495	536	642	642	756	740	716	840	940	890	900	885	977	1,033	1,178	1,174	1,348	1,348	1,548	1,559	1,609	1,609	1,745	1,745	1,836	
1.1.3	Capacity requirement																														
	Reserve (C-AAPD) (MW)	118	89	175	169	95	88	173	141	213	122	78	200	263	233	210	167	192	188	269	190	310	235	382	336	334	273	356	300	335	
	Percent margin (100xR/AAPD) (%)	39.2	27.0	49.2	46.8	23.8	19.6	36.9	28.1	39.2	19.7	12.2	31.3	38.8	35.5	30.4	23.3	24.5	22.2	29.6	19.3	29.9	21.1	32.8	27.5	26.2	20.4	25.6	20.8	22.3	

Table 1.1-1  
LOADS AND RESOURCES SUMMARY  
1964 THROUGH 1992 (Sheet 4 of 7)

PRC  
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PUBLIC SERVICE COMPANY OF NEW MEXICO

Year	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
1.1.1.1 Load characteristics, demand (MW)																													
Company peak demand	268	303	316	316	341	372	399	455	486	533	566	556	584	620	683	745	814	883	979	1,076	1,165	1,265	1,352	1,445	1,565	1,659	1,783	1,928	2,089
Firm sales outside PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	18	30	49	95	126	164	212	252	275	241	205	221	237	256	274	289	303	319	334
Firm sales within PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total firm sales (TFS)	0	0	0	0	0	0	0	0	0	0	18	30	49	95	126	164	212	252	275	241	205	221	237	256	274	289	303	319	334
Annual peak demand (CPD+TFS)	268	303	316	316	341	372	399	455	486	533	584	586	633	715	809	909	1,026	1,135	1,254	1,317	1,370	1,486	1,589	1,701	1,839	1,948	2,086	2,247	2,423
Firm purchases outside PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	75	0	0	0	0	0	0	0	0	0	0	0	0	0
Firm purchases within PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total firm purchases (TFP)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	75	0	0	0	0	0	0	0	0	0	0	0	0	0
Adjusted annual peak demand (APD-TFP-ID)	268	303	316	316	341	372	399	455	486	533	584	586	633	715	734	834	1,026	1,135	1,254	1,317	1,370	1,486	1,589	1,701	1,839	1,948	2,086	2,247	2,423
1.1.1.1 Load characteristics, energy (GWh)																													
Company energy	1,474	1,577	1,682	1,779	1,919	2,094	2,272	2,534	2,771	2,914	3,060	3,369	3,417	3,480	3,740	4,253	4,691	5,118	5,690	6,321	6,871	7,459	7,996	8,575	9,269	9,958	10,713	11,514	12,387
Firm energy sales outside PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	54	152	448	1,039	1,063	1,376	1,586	1,905	2,145	2,038	1,706	1,642	1,760	1,883	2,015	2,127	2,230	2,347	2,458
Annual Energy (CE+FES)	1,474	1,577	1,682	1,779	1,919	2,094	2,272	2,534	2,771	2,914	3,114	3,521	3,865	4,519	4,803	5,629	6,277	7,023	7,835	8,359	8,577	9,101	9,756	10,458	11,284	12,085	12,943	13,861	14,845
Firm energy purchases outside PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	412	480	0	0	0	0	0	0	0	0	0	0	0	0	0
Adjusted annual energy (AE-FEP)	1,474	1,577	1,682	1,779	1,919	2,094	2,272	2,534	2,771	2,914	3,114	3,521	3,865	4,519	4,391	5,149	6,277	7,023	7,835	8,359	8,577	9,101	9,756	10,458	11,284	12,085	12,943	13,861	14,845
1.1.1.2 Power supply (MW)																													
Installed resources	333	333	333	333	333	437	541	541	541	561	726	726	720	858	842	842	1,071	1,071	1,656	1,656	1,786	1,786	1,916	2,055	2,405	2,405	2,405	2,405	2,405
Nonfirm purchases outside PVNGS 1,2&3	0	0	0	0	0	0	0	0	17	17	17	0	0	0	0	60	160	240	0	0	0	0	0	0	0	0	0	0	0
Nonfirm purchases within PVNGS 1,2&3	0	0	0	0	35	50	0	0	42	57	10	85	95	60	115	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total nonfirm purchases	0	0	0	0	35	50	0	0	59	74	27	85	95	60	115	60	160	240	0	0	0	0	0	0	0	0	0	0	0
Nonfirm sales outside PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	151	76	142	0	0	0	0	0	0	0	0
Nonfirm sales within PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total nonfirm sales	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	151	76	142	0	0	0	0	0	0	0	0
Noncommitted	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	300	300	600
Capability (IR+NFP-NFS)	333	333	333	333	368	487	541	541	600	635	753	811	815	918	957	902	1,231	1,311	1,505	1,580	1,644	1,786	1,916	2,055	2,405	2,405	2,705	2,705	2,945
1.1.1.3 Capacity requirement	268	303	316	316	341	372	399	455	486	533	584	586	633	715	734	834	1,026	1,135	1,254	1,317	1,370	1,486	1,589	1,701	1,839	1,948	2,086	2,242	2,423
Reserve (C-AAPD) (MW)	65	30	17	17	27	115	142	86	114	102	169	225	182	203	223	68	205	176	251	263	274	300	327	354	566	457	619	458	522
Percent margin (100xR/AAPD) (%)	24	10	5	5	8	31	36	19	23	19	29	38	29	28	30	8	20	16	20	20	20	20	21	21	31	23	30	20	22

Table 1.1-1  
LOADS AND RESOURCES SUMMARY  
1964 THROUGH 1992 (Sheet 5 of 7)

PRC  
APERTURE  
CARD



## SALT RIVER PROJECT

Year		1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992			
1.1.1	Load characteristics, demand (MW)																																
	Company peak demand <sup>(a)</sup>	547	609	652	679	762	944	1,055	1,120	1,360	1,448	1,645	1,634	1,732	1,731	1,854	2,065	2,185	2,312	2,429	2,541	2,652	2,790	2,909	3,024	3,103	3,178	3,276	3,376	3,474			
	Firm sales outside PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	26	31	35	31	141	41	46	46	50	55	60	60	60	60	60	60	60	60	60	60			
	Firm sales within PVNGS 1,2&3	<u>61</u>	<u>56</u>	<u>38</u>	<u>56</u>	<u>53</u>	<u>55</u>	<u>90</u>	<u>94</u>	<u>111</u>	<u>140</u>	<u>169</u>	<u>169</u>	<u>158</u>	<u>150</u>	<u>236</u>	<u>193</u>	<u>201</u>	<u>210</u>	<u>220</u>	<u>229</u>	<u>239</u>	<u>251</u>	<u>260</u>	<u>271</u>	<u>282</u>	<u>292</u>	<u>302</u>	<u>312</u>	<u>322</u>			
	Total firm sales (TFS)	61	56	38	56	53	55	90	94	111	166	200	204	189	291	277	239	247	260	275	289	299	311	320	331	342	352	362	372	382			
	Annual peak demand (CPD+TFS)	608	665	690	735	815	999	1,145	1,214	1,471	1,614	1,845	1,838	1,921	2,022	2,131	2,304	2,432	2,572	2,704	2,830	2,951	3,101	3,229	3,355	3,445	3,530	3,638	3,748	3,856			
	Firm purchases outside PVNGS 1,2&3	(87)	(157)	(205)	(293)	(378)	(400)	(423)	(404)	(365)	(430)	(409)	(181)	(162)	(299)	(297)	(160)	(160)	(160)	(160)	(160)	(160)	(160)	(160)	(160)	(160)	(160)	(160)	(160)	(160)	(160)		
	Firm purchases within PVNGS 1,2&3	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>		
	Total firm purchases (TFP)	(87)	(157)	(205)	(293)	(378)	(400)	(423)	(404)	(365)	(430)	(409)	(181)	(162)	(299)	(297)	(160)	(160)	(160)	(160)	(160)	(160)	(160)	(160)	(160)	(160)	(160)	(160)	(160)	(160)	(160)	(160)	
	Adjusted annual peak demand (APD-TFP-ID)	521	508	485	442	437	599	722	810	1,106	1,184	1,436	1,657	1,759	1,723	1,834	2,144	2,272	2,412	2,544	2,670	2,791	2,941	3,069	3,195	3,285	3,370	3,478	3,588	3,696			
1.1.1	Load characteristics, energy (GWh)																																
	Company energy (includes interruptible energy)	2,777	2,849	3,102	3,313	3,518	4,364	4,936	5,419	6,119	6,586	7,464	7,667	7,936	8,226	8,591	9,555	10,432	11,275	11,792	12,441	13,050	13,853	14,545	15,307	15,850	16,375	17,057	17,795	18,552			
	Firm energy sales outside PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	114	178	171	236	363	306	284	346	357	320	335	335	336	336	336	336	336	336	336	336	336		
	Annual energy (CE+FES)	2,777	2,849	3,102	3,313	3,518	4,364	4,936	5,419	6,119	6,700	7,642	7,838	8,172	8,589	8,897	9,839	10,778	11,632	12,112	12,776	13,385	14,189	14,881	15,643	16,186	16,711	17,393	18,131	18,888			
	Firm energy purchases outside PVNGS 1,2&3	(81)	(254)	(306)	(405)	(577)	(844)	(908)	(1,372)	(825)	(965)	(739)	(672)	(602)	(754)	(754)	(586)	(586)	(586)	(586)	(586)	(586)	(586)	(586)	(586)	(586)	(586)	(586)	(586)	(586)	(586)	(586)	
	Adjusted annual energy (AE-FEP)	2,696	2,595	2,796	2,908	2,941	3,520	4,028	4,047	5,294	5,735	6,903	7,166	7,570	7,835	8,143	9,253	10,192	11,046	11,526	12,190	12,799	13,603	14,295	15,057	15,600	16,125	16,807	17,545	18,302			
1.1.2	Power supply (MW)																																
	Installed resources	607	608	611	610	610	681	758	845	1,155	1,336	1,627	2,152	2,241	2,449	2,450	2,468	3,074	3,190	3,618	3,615	3,912	3,906	4,203	4,203	4,203	4,203	4,203	4,323	4,503			
	Nonfirm purchases outside PVNGS 1,2&3	47	147	148	140	135	130	124	123	156	153	221	269	163	163	163	163	163	163	163	163	163	56	56	56	56	56	56	56	56	56		
	Nonfirm purchases within PVNGS 1,2&3	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>80</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>		
	Total nonfirm purchases	47	147	148	140	135	130	124	203	156	153	221	269	163	163	163	163	163	163	163	163	163	56	56	56	56	56	56	56	56	56	56	
	Nonfirm sales outside PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Nonfirm sales within PVNGS 1,2&3	<u>(62)</u>	<u>(62)</u>	<u>(62)</u>	<u>(62)</u>	<u>(62)</u>	<u>(62)</u>	<u>(62)</u>	<u>(62)</u>	<u>(62)</u>	<u>(62)</u>	<u>(62)</u>	<u>(62)</u>	<u>(62)</u>	<u>(62)</u>	<u>(62)</u>	<u>(62)</u>	<u>(62)</u>	<u>(62)</u>	<u>(202)</u>	<u>(202)</u>	<u>(202)</u>	<u>(132)</u>	<u>(132)</u>	<u>(62)</u>	<u>(62)</u>	<u>(62)</u>	<u>(62)</u>	<u>(62)</u>	<u>(62)</u>	<u>(62)</u>	<u>(62)</u>	
	Total nonfirm sales	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(202)	(202)	(202)	(132)	(132)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)
	Noncommitted																																
	Capability (IR+NFP-NFS)	592	693	697	688	683	749	820	986	1,249	1,427	1,786	2,359	2,342	2,550	2,551	2,569	3,175	3,291	3,579	3,576	3,943	3,830	4,197	4,197	4,197	4,197	4,197	4,317	4,497			
1.1.3	Capacity requirement	521	508	485	442	437	599	722	810	1,106	1,184	1,436	1,657	1,759	1,723	1,834	2,144	2,272	2,412	2,544	2,670	2,791	2,941	3,069	3,195	3,285	3,370	3,478	3,588	3,696			
	Reserve (C-AAPD) (MW)	71	185	212	246	246	150	98	176	143	243	350	702	583	827	717	425	903	879	1,035	906	1,152	889	1,128	1,002	912	827	719	729	801			
	Percent margin (100xR/AAPD) (%)	13.6	36.4	43.7	55.7	56.3	25.0	13.6	21.7	12.9	20.5	24.4	42.4	33.1	48.0	39.1	19.8	39.7	36.4	40.7	33.9	41.3	30.2	36.8	31.4	27.8	24.5	20.7	20.3	21.7			

(a) SRP carries some interruptible load on its system, but this load is assumed to be zero at the time of SRP's annual peak demand. Interruptible demand is not included in the peak load forecast and no generation is planned to supply interruptible demand.

Table 1.1-1

## LOADS AND RESOURCES SUMMARY

1964 THROUGH 1992 (Sheet 6 of 7)

PRC  
APERTURE  
CARD



SOUTHERN CALIFORNIA EDISON COMPANY

Year	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
1.1.1 Load characteristics, demand (MW)																													
Company peak demand	5617	6034	6448	7164	7707	8092	8556	9632	10132	10535	10279	10369	11292	11564	12159	12361	12361	13101	13581	14091	14621	15071	15551	16051	16515	17025	17509	18069	18639
Firm sales outside PVNGS 1,2&3	0	0	0	0	0	0	0	35	35	0	0	0	0	258	0	32	40	79	135	0	0	0	0	0	0	0	0	0	0
Firm sales within PVNGS 1,2&3	0	0	0	0	0	0	0	150	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total firm sales (TFS)	0	0	0	0	0	0	0	185	185	0	0	0	0	258	0	32	40	79	135	0	0	0	0	0	0	0	0	0	0
Annual peak demand (CPD+TFS)	5617	6034	6448	7164	7707	8092	8556	9817	10317	10535	10279	10369	11292	11822	12159	12393	12671	13180	13716	14091	14621	15071	15551	16051	16515	17025	17509	18069	18639
Firm purchases outside PVNGS 1,2&3	0	0	0	0	(363)	(260)	(378)	(376)	(376)	(376)	(517)	(611)	(611)	(611)	(611)	(611)	(611)	(823)	(611)	(611)	(870)	(870)	(870)	(870)	(870)	(870)	(870)	(870)	(870)
Firm purchases within PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total firm purchases (TFP)	0	0	0	0	(363)	(260)	(378)	(376)	(376)	(376)	(517)	(611)	(611)	(611)	(611)	(611)	(611)	(823)	(611)	(611)	(870)	(870)	(870)	(870)	(870)	(870)	(870)	(870)	(870)
Adjusted annual peak demand (APD-TFP-ID)	5617	6034	6448	7164	7344	7832	8178	9441	9941	10159	9762	9758	10681	11211	11548	11782	12060	12357	13105	13480	13751	14201	14681	15181	15645	16155	16639	17199	17769
1.1.1 Load characteristics, energy (GWh)																													
Company energy	31529	34499	37821	40592	44088	46953	49961	52840	55608	57846	55113	55861	57916	60626	61560	62659	64815	67210	69720	72500	75630	78160	80870	83480	86000	86610	91370	94210	97100
Firm energy sales outside PVNGS 1,2&3	612	420	511	675	529	772	963	1323	1687	1944	1492	1152	1620	4172	1626	3240	3125	3136	3405	2480	2254	2112	2192	1802	1355	1645	1910	1899	2001
Annual Energy (CE-FES)	32141	34919	38332	41267	44617	47725	50924	54163	57295	59430	56605	57013	59536	64798	63186	65899	67940	70346	73125	74980	77884	80272	83062	85282	87355	90255	93280	96109	99101
Firm energy purchases outside PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Adjusted annaul energy (AE-FEP)	32141	34919	38332	41267	44617	47725	50924	54163	57295	59430	56605	57013	59536	64798	63186	65899	67940	70346	73125	74980	77884	80272	83062	85282	87355	90255	93280	96109	99101
1.1.2 Power supply (MW)																													
Installed resources	6752	7086	8046	8870	9088	9724	10639	11108	12344	13026	13134	13127	13247	13798	14158	14375	14423	14622	15676	16106	16306	16727	17319	17948	18728	19148	19725	20274	20933
Nonfirm purchases outside PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nonfirm purchases within PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total nonfirm purchases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nonfirm sales outside PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	16	17	16	32	32	32	0	0	0	0	0	0	0	0
Nonfirm sales within PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total nonfirm sales	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	16	17	16	32	32	32	0	0	0	0	0	0	0	0
Noncommitted	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capability (IR+NFP-NFS)	6752	7086	8046	8870	9088	9724	10639	11108	12344	13026	13134	13127	13247	13798	14143	14359	14486	14606	15644	16074	16274	16727	17319	17948	18728	19148	19725	20274	20933
1.1.3 Capacity requirement																													
Reserve (C-AAPD) (MW)	1135	1052	1598	1706	1744	1892	2461	1667	2403	2867	3372	3369	2566	2587	2595	2577	2346	2249	2539	2594	2523	2526	2638	2767	3083	2993	3086	3075	3164
Percent margin (100xR/AAPD) (%)	20.2	17.5	24.8	23.8	23.7	24.2	30.1	17.6	24.2	28.2	34.6	34.5	24.0	23.1	22.5	21.9	19.5	18.2	19.3	19.2	18.4	17.8	18.0	18.2	19.7	18.5	18.6	17.9	17.8

Table 1.1-1  
LOADS AND RESOURCES SUMMARY  
1964 THROUGH 1992 (Sheet 7 of 7)

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Table 1.1-2  
LOAD AND ENERGY REQUIREMENTS BY MONTH  
1981 THROUGH 1988 (Sheet 1 of 56)  
PVNGS PARTICIPANTS  
Page 1 of 8

PVNGS PARTICIPANTS (1 of 8)

YEAR: 1981	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Energy
1.1.1 Load characteristics, demand (MW)													
Company monthly peak demand	18024	17509	17316	17549	19817	22180	23645	23998	23205	19723	13468	18858	
Firm sales	794	790	688	637	701	912	929	928	793	700	738	742	
Monthly peak demand (PVNGS-1,2&3+FS)	18818	18299	18004	18186	20518	23092	24574	24926	23998	20423	19206	19600	
Firm Purchases (a)	67	65	74	127	148	166	166	166	166	68	63	68	
Adjusted monthly peak demand (MPD-FP)	18751	18234	17930	18059	20370	22926	24408	14760	23832	20355	19143	19532	
1.1.1 Load characteristics, energy (GWh)													
Company monthly energy	9806	8741	9631	9392	9907	10556	11572	11778	10780	10252	9491	9900	121806
Firm energy sales (a)	756	692	612	586	752	788	859	868	780	737	732	775	8937
Firm energy purchases	28	29	36	59	66	77	88	82	71	28	25	28	617
Monthly energy requirement (PVNGS-1,2&3+FES-FEP)	10534	9404	10207	9919	10593	11267	12343	12564	11489	10961	10198	10647	130126

(a) Sales and purchases to Companies other than the PVNGS-1, 2 & 3 participants.

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Table 1.1-2  
LOAD AND ENERGY REQUIREMENTS BY MONTH  
1981 THROUGH 1988 (Sheet 2 of 56)  
PVNGS PARTICIPANTS  
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PVNGS PARTICIPANTS (2 of 8)

YEAR: 1982	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Energy
1.1.1 Load characteristics, demand (MW)													
Company monthly peak demand	18742	18215	18002	18257	20648	23111	24629	25001	24165	20530	19216	19625	
Firm sales	805	801	799	742	809	1014	1031	1030	895	796	832	836	
Monthly peak demand (PVNGS-1,2&3+FS)	19547	19016	18801	18999	21457	24125	25660	26031	25060	21326	20048	20461	
Firm Purchases (a)	67	65	74	127	148	166	166	166	166	68	63	68	
Adjusted monthly peak demand (MPD-FP)	19480	18951	18727	18872	21309	23959	25494	25865	24894	21258	19985	20393	
1.1.1 Load characteristics, energy (GWh)													
Company monthly energy	10234	9112	10052	9786	10343	11023	12088	12305	11253	10702	9917	10339	127154
Firm energy sales (a)	800	744	771	738	779	809	869	898	842	798	775	803	9626
Firm energy purchases	28	29	36	59	66	77	88	82	71	28	25	28	617
Monthly energy requirement (PVNGS-1,2&3+FES-FEP)	11006	9827	10787	10465	11056	11755	12869	13121	12024	11472	10667	11114	136163

(a) Sales and purchases to Companies other than the PVNGS-1, 2 & 3 participants.

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Table 1.1-2  
LOAD AND ENERGY REQUIREMENTS BY MONTH  
1981 THROUGH 1988 (Sheet 3 of 56)  
PVNGS PARTICIPANTS  
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PVNGS PARTICIPANTS (3 of 8)

YEAR: 1983	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Energy
1.1.1 Load characteristics, demand (MW)													
Company monthly peak demand	19540	18978	18754	19019	21531	24124	25685	26074	25197	21408	20023	20456	
Firm sales	706	702	700	644	714	745	762	761	745	644	678	682	
Monthly peak demand (PVNGS-1,2&3+FS)	20246	19680	19454	19663	22245	24869	26447	26835	25942	22052	20701	21138	
Firm Purchases (a)	67	65	74	127	148	166	166	166	166	68	63	68	
Adjusted monthly peak demand (MPD-FP)	20179	19615	19380	19536	22097	24703	26281	26669	25776	21984	20638	21070	
1.1.1 Load characteristics, energy (GWh)													
Company monthly energy	10717	9542	10515	10242	10834	11561	12671	12908	11804	11205	10375	10828	133202
Firm energy sales (a)	762	706	692	626	624	635	674	701	640	648	630	657	7995
Firm energy purchases	28	29	36	59	66	77	88	82	71	28	25	28	617
Monthly energy requirement (PVNGS-1,2&3+FES-FEP)	11451	10219	11171	10809	11392	12119	13257	13527	12373	11825	10980	11457	140580

(a) Sales and purchases to Companies other than the PVNGS-1, 2 & 3 participants.

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Table 1.1-2  
LOAD AND ENERGY REQUIREMENTS BY MONTH  
1981 THROUGH 1988 (Sheet 4 of 56)  
PVNGS PARTICIPANTS  
Page 4 of 8

PVNGS PARTICIPANTS (4 of 8)

YEAR: 1984	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Energy
1.1.1 Load characteristics, demand (MW)													
Company monthly peak demand	20327	19748	19514	19787	22426	25128	26752	27155	26242	22295	20827	21269	
Firm sales	681	677	675	622	693	722	740	738	722	618	909	914	
Monthly peak demand (PVNGS-1,2&3+FS)	21008	20425	20189	20409	23119	25850	27492	27893	26964	22913	21736	22183	
Firm Purchases (a)	67	65	74	128	148	166	166	166	166	68	63	68	
Adjusted monthly peak demand (MPD-FP)	20941	20360	20115	20281	22971	25684	27326	27727	26798	22845	21673	22115	
1.1.1 Load characteristics, energy (GWh)													
Company monthly energy	11214	10161	10995	10703	11329	12101	13270	13507	12346	11714	10842	11314	139496
Firm energy sales (a)	667	589	631	607	593	601	646	664	615	609	583	644	7449
Firm energy purchases	28	29	36	59	66	77	88	82	71	28	25	28	617
Monthly energy requirement (PVNGS-1,2&3+FES-FEP)	11853	10721	11590	11251	11856	12625	13828	14089	12890	12295	11400	11930	146328

(a) Sales and purchases to Companies other than the PVNGS-1, 2 & 3 participants.

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Table 1.1-2

LOAD AND ENERGY REQUIREMENTS BY MONTH  
1981 THROUGH 1988 (Sheet 5 of 56)

PVNGS PARTICIPANTS

PVNGS PARTICIPANTS (5 of 8)

YEAR: 1985	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Energy
1.1.1 Load characteristics, demand (MW)													
Company monthly peak demand	21103	20532	20253	20548	23313	26156	27814	28223	27278	23181	21620	22087	
Firm sales	916	910	908	855	671	755	774	772	756	648	937	941	
Monthly peak demand (PVNGS-1,2&3+FS)	22019	21442	21161	21403	23984	26911	28588	28995	28034	23829	22557	23028	
Firm Purchases (a)	67	65	74	127	148	166	166	166	166	68	63	68	
Adjusted monthly peak demand (MPD-FP)	21952	21377	21542	21276	23836	26745	28422	28829	27868	23761	22494	22960	
1.1.1 Load characteristics, energy (GWh)													
Company monthly energy	11705	10424	11469	11169	11831	12641	13875	14134	12909	12239	11326	11813	145535
Firm energy sales (a)	639	566	601	589	558	603	667	679	608	620	593	650	7373
Firm energy purchases	28	29	36	59	66	77	88	82	71	28	25	28	617
Monthly energy requirement (PVNGS-1,2&3+FES-FEP)	12316	10961	12034	11699	12323	13167	14454	14731	13446	12831	11894	12435	152291

(a) Sales and purchases to Companies other than the PVNGS-1, 2 & 3 participants.

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NEED FOR POWER

Table 1.1-2  
LOAD AND ENERGY REQUIREMENTS BY MONTH  
1981 THROUGH 1988 (Sheet 6 of 56)  
PVNGS PARTICIPANTS  
Page 6 of 8

PVNGS PARTICIPANTS (6 of 8)

YEAR: 1986	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Energy
1.1.1 Load characteristics, demand (MW)													
Company monthly peak demand	21873	21299	21025	21309	24185	27151	28863	29279	28307	24065	22416	22894	
Firm sales	942	937	935	884	703	788	808	806	788	676	963	968	
Monthly peak demand (PVNGS-1,2&3+FS)	22815	22236	21960	22193	24888	27939	29671	30085	29095	24741	23379	23862	
Firm Purchases (a)	67	65	74	127	148	166	166	166	166	68	63	68	
Adjusted monthly peak demand (MPD-FP)	22748	22171	21886	22066	24740	27773	29505	29919	28929	24673	23316	23794	
1.1.1 Load characteristics, energy (GWh)													
Company monthly energy	12183	10848	11929	11624	12311	13170	14452	14729	13455	12743	11788	12290	151522
Firm energy sales (a)	662	595	633	606	583	637	694	708	648	641	617	673	7697
Firm energy purchases	28	29	36	59	66	77	88	82	71	28	25	28	617
Monthly energy requirement (PVNGS-1,2&3+FES-FEP)	12817	11414	12526	12171	12828	13730	15058	15355	14032	13356	12380	12935	158602

(a) Sales and purchases to Companies other than the PVNGS-1, 2 & 3 participants.

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Table 1.1-2  
LOAD AND ENERGY REQUIREMENTS BY MONTH  
1981 THROUGH 1988 (Sheet 7 of 56)  
PVNGS PARTICIPANTS  
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PVNGS PARTICIPANTS (7 of 8)

YEAR: 1987	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Energy
1.1.1 Load characteristics, demand (MW)													
Company monthly peak demand	22635	21985	21757	22044	25064	28192	29947	30372	29366	24969	23232	23695	
Firm sales	969	965	962	913	734	825	846	844	826	710	1622	1627	
Monthly peak demand (PVNGS-1,2&3+FS)	23604	22950	22719	22957	25798	29017	30793	31216	30192	25679	24854	25322	
Firm Purchases <sup>(a)</sup>	67	65	74	127	148	166	166	166	166	68	63	68	
Adjusted monthly peak demand (MPD-FP)	23537	22885	22645	22830	25650	28851	30627	31050	30026	25611	24791	25254	
1.1.1 Load characteristics, energy (GWh)													
Company monthly energy	12663	11260	12433	12066	12797	13708	15053	15333	14007	13257	12263	12826	157666
Firm energy sales <sup>(a)</sup>	708	644	669	649	611	674	725	643	567	551	529	605	7575
Firm energy purchases	28	29	36	59	66	77	88	82	71	28	25	28	617
Monthly energy requirement (PVNGS-1,2&3+FES-FEP)	13343	11875	13066	12656	13342	14305	15690	15894	14503	13780	12767	13403	164624

(a) Sales and purchases to Companies other than the PVNGS-1, 2 & 3 participants.

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Table 1.1-2  
LOAD AND ENERGY REQUIREMENTS BY MONTH  
1981 THROUGH 1988 (Sheet 8 of 56)  
PVNGS PARTICIPANTS  
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PVNGS PARTICIPANTS (8 of 8)

YEAR: 1988	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Energy
1.1.1 Load characteristics, demand (MW)													
Company monthly peak demand	23429	22755	22474	22781	25918	29168	30977	31408	30409	25826	24006	24518	
Firm sales	1628	1624	1621	1666	767	862	884	882	863	743	1651	1657	
Monthly peak demand (PVNGS-1,2&3+FS)	25057	24379	24095	24447	26685	30030	31861	32290	31272	26569	25657	26175	
Firm Purchases (a)	67	65	74	127	148	166	166	166	166	68	65	68	
Adjusted monthly peak demand (MPD-FP)	24990	24314	24021	24320	26537	29864	31695	32124	31106	26501	25594	26107	
1.1.1 Load characteristics, energy (GWh)													
Company monthly energy	13150	11877	12846	12488	13253	14220	15618	15910	14537	13735	12700	13257	163591
Firm energy sales (a)	631	565	596	598	562	625	676	703	607	620	588	648	7419
Firm energy purchases	28	29	36	59	66	77	88	82	71	28	25	28	617
Monthly energy requirement (PVNGS-1,2&3+FES-FEP)	13753	12413	13406	13027	13749	14768	16206	16531	15073	14327	13263	13877	170393

(a) Sales and purchases to Companies other than the PVNGS-1, 2 & 3 participants.

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SALT RIVER PROJECT

Year 1986	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Energy
1.1.1 Load characteristics, demand (MW)													
Company peak demand (a)	1,776	1,716	1,710	1,813	2,461	2,849	2,909	2,855	2,775	2,170	1,710	1,824	
Firm sales outside PVNGS 1,2&3	60	60	6	60	60	60	60	60	60	60	60	60	
Firm sales within PVNGS 1,2&3	251	251	251	251	251	260	260	260	260	260	260	260	
Total firm sales (TFS)	311	311	311	311	311	320	320	320	320	320	320	320	
Monthly peak demand (CPD+TFS)	2,087	2,027	2,021	2,124	2,772	3,169	3,229	3,175	3,095	2,490	2,030	2,144	
Firm purchases outside PVNGS 1,2&3	(63)	(62)	(71)	(123)	(143)	(160)	(160)	(160)	(160)	(64)	(59)	(64)	
Firm purchases within PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	
Total firm purchases (TFP)	(63)	(62)	(71)	(123)	(143)	(160)	(160)	(160)	(160)	(64)	(59)	(64)	
Adjusted monthly peak demand (MPD-TFP-ID)	2,024	1,965	1,950	2,001	2,629	3,009	3,069	3,015	2,935	2,426	1,971	2,080	
1.1.1 Load characteristics, energy (GWh)													
Company monthly energy (includes interruptible energy)	1,170	1,007	1,006	960	1,051	1,285	1,510	1,603	1,600	1,322	1,027	1,004	14,545
Firm energy sales outside PVNGS 1,2&3	35	33	37	20	26	28	34	34	26	20	16	27	336
Firm energy purchases outside PVNGS 1,2&3	(26)	(27)	(34)	(57)	(63)	(74)	(84)	(78)	(68)	(26)	(23)	(26)	(586)
Monthly energy requirement (CME+FES-FEP)	1,179	1,013	1,009	923	1,014	1,239	1,460	1,559	1,558	1,316	1,020	1,005	14,295

(a) Interruptible demand is not included in the peak load forecast, and no generation is planned to supply interruptible demand.

Table 1.1-2  
LOAD AND ENERGY REQUIREMENTS BY MONTH  
1981 THROUGH 1988 (Sheet 46 of 56)  
SALT RIVER PROJECT  
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SALT RIVER PROJECT

Year 1987	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Energy
1.1.1 Load characteristics, demand (MW)													
Company peak demand (a)	1,845	1,729	1,777	1,884	2,558	2,962	3,024	2,968	2,884	2,255	1,777	1,895	
Firm sales outside PVNGS 1,2&3	60	60	60	60	60	60	60	60	60	60	60	60	
Firm sales within PVNGS 1,2&3	260	260	260	260	260	271	271	271	271	271	271	271	
Total firm sales (TFS)	320	320	320	320	320	331	331	331	331	331	331	331	
Monthly peak demand (CPD+TFS)	2,165	2,049	2,097	2,204	2,878	3,293	3,355	3,299	3,215	2,586	2,108	2,226	
Firm purchases outside PVNGS 1,2&3	(63)	(62)	(71)	(123)	(143)	(160)	(160)	(160)	(160)	(64)	(59)	(64)	
Firm purchases within PVNGS 1,2&3	0	0	0	0	0	0	0	0	0	0	0	0	
Total firm purchases (TFP)	(63)	(62)	(71)	(123)	(143)	(160)	(160)	(160)	(160)	(64)	(59)	(64)	
Adjusted monthly peak demand (MPD-TFP-ID)	2,102	1,987	2,026	2,081	2,735	3,133	3,195	3,139	3,055	2,522	2,049	2,162	
1.1.1 Load characteristics, energy (GWh)													
Company monthly energy (includes interruptible energy)	1,232	1,060	1,059	1,009	1,106	1,350	1,589	1,687	1,683	1,393	1,082	1,057	15,307
Firm energy sales outside PVNGS 1,2&3	35	33	37	20	26	28	34	34	26	20	16	27	336
Firm energy purchases outside PVNGS 1,2&3	(26)	(27)	(34)	(57)	(63)	(74)	(84)	(78)	(68)	(26)	(23)	(26)	(586)
Monthly energy requirement (CME+FES-FEP)	1,241	1,066	1,062	972	1,069	1,304	1,539	1,643	1,641	1,387	1,075	1,058	15,057

(a) Interruptible demand is not included in the peak load forecast, and no generation is planned to supply interruptible demand.

Table 1.1-2  
LOAD AND ENERGY REQUIREMENTS BY MONTH  
1981 THROUGH 1988 (Sheet 47 of 56)  
SALT RIVER PROJECT  
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## ARIZONA - NEW MEXICO &amp; SOUTHERN CALIFORNIA - NEVADA

Year	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
1.1.1 Load Characteristics, demand (MW)																	
(AZ-NM) system peak demand	5,590	6,104	6,502	6,565	6,958	7,110	7,383	8,329	8,948	9,569	10,200	10,803	11,421	12,267	12,921	13,650	14,262
(SoCA-NV) system peak demand	16,807	17,201	16,817	17,009	18,580	18,815	20,150	20,807	21,463	22,350	23,265	23,810	24,749	25,631	26,543	27,521	28,450
Combined system peak demand	22,397	23,305	23,319	23,574	25,538	25,925	27,533	29,136	30,411	31,919	33,465	34,613	36,170	37,898	39,464	41,171	42,712
Firm sales outside combined system	0	0	0	0	0	605	148	316	197	25	28	31	35	38	358	927	1,496
Combined system annual peak demand	22,397	23,305	23,319	23,574	25,538	26,530	27,681	29,452	30,608	31,944	33,493	33,644	36,205	37,936	39,822	42,098	44,208
Firm purchases outside combined system	2,084	2,214	2,471	2,316	2,311	2,349	2,537	2,593	2,762	2,963	2,623	2,312	2,347	2,365	1,878	1,231	1,184
Combined system interruptible demand	0	0	0	0	11	28	42	129	179	183	187	191	195	465	569	713	718
Combined system adjusted annual peak demand	20,313	21,091	20,848	21,198	23,216	24,153	25,102	27,730	27,667	28,798	30,683	32,141	33,663	35,106	37,375	40,146	42,306
1.1.1 Load characteristics, energy (GWh)																	
(AZ-NM) system annual energy	27,252	30,082	31,878	30,082	34,034	35,787	37,387	40,973	44,973	49,211	52,989	56,606	60,204	64,570	68,439	72,675	76,377
(SoCA-NV) system annual energy	90,841	94,214	90,394	91,025	95,716	96,666	102,317	103,347	103,969	110,660	115,047	118,304	122,977	127,383	132,220	136,963	141,910
Combined system annual energy	118,093	124,296	122,272	121,107	129,750	132,453	139,704	144,320	148,942	159,871	168,036	174,910	183,181	191,953	200,659	209,638	218,287
Firm energy sales outside combined system	(b)	(b)	(b)	(b)	753	9,599	2,993	4,934	4,590	4,327	4,450	4,085	3,919	3,927	4,399	5,979	8,267
Firm energy purchases outside combined system	(b)	(b)	(b)	(b)	2,985	8,716	18,025	3,541	6,282	6,959	5,874	5,579	5,395	5,559	5,573	5,592	5,644
Combined system interruptible energy	(b)	(b)	(b)	(b)	148	233	258	290	326	414	414	414	414	1,300	1,987	2,730	2,730
Combined system annual energy requirement	- -	- -	- -	- -	127,370	133,103	124,414	145,423	146,920	156,825	166,198	173,002	181,291	189,021	197,498	207,295	218,180
1.1.1 Power supply (MW)																	
(AZ-NM) system installed resources	6,678	7,170	8,365	9,922	10,685	11,027	9,605	10,284	11,607	11,854	13,386	13,528	14,780	15,562	16,680	17,149	18,210
(SoCA-NV) system installed resources	18,635	19,764	20,259	20,954	21,151	22,197	24,771	25,638	25,760	26,104	27,447	28,405	29,182	29,627	30,739	32,320	33,790
Combined system installed resources	25,313	26,934	28,624	30,876	31,836	33,224	34,376	35,922	37,367	37,958	40,833	41,933	43,962	45,189	47,419	49,469	52,000
Nonfirm sales outside combined system	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Nonfirm purchases outside combined system	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Combined system maintenance and force outage	1,868	3,569	3,480	2,954	4,058	3,288	6,266	378	534	507	329	353	199	178	427	532	784
Combined system capability	23,445	23,365	25,144	27,922	27,778	29,936	28,110	35,544	36,833	37,451	40,504	41,580	43,763	45,011	46,992	48,937	51,216
1.1.1 Capacity requirement																	
Reserve (MW)	3,132	2,274	4,296	6,724	4,562	5,783	3,008	7,814	9,166	8,653	9,821	9,439	10,100	9,905	9,617	8,791	8,910
Percent margin (%)	15.4	10.8	20.6	31.7	19.7	23.9	12.0	28.2	33.1	30.0	32.0	29.4	30.0	28.2	25.7	21.9	21.1

a. Western Systems Coordinating Council Summary of Estimated Loads and Resources - 1972 Report, 1973 Report, 1974 Report, 1975 Report, 1976 Report, 1977 Report, and 1978 Report.

b. Data not available.

Table 1.1-3  
LOAD AND RESOURCES SUMMARY COMBINED  
ARIZONA-NEW MEXICO (AZ-NM) AND  
SOUTHERN CALIFORNIA-NEVADA (SoCA-NV)  
SYSTEMS AS REPORTED TO THE WSCC (a)  
(1972 THROUGH 1987)

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ARIZONA - NEW MEXICO & SOUTHERN CALIFORNIA - NEVADA

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Year: 1982												
1.1.1 Load characteristic, demand (MW)												
(AZ-NM) system peak demand	6,923	6,671	6,726	7,248	8,707	9,975	10,221	10,200	9,869	8,023	6,980	7,300
(SoCA-NV) system peak demand	18,263	17,750	17,397	17,116	18,916	20,960	22,684	23,265	22,374	19,354	18,937	19,294
Combined system peak demand	25,186	24,421	24,123	24,364	27,623	30,935	32,905	33,465	32,243	27,377	25,917	26,594
Firm sales outside combined system	125	125	125	28	28	28	28	28	28	28	128	128
Combined system monthly peak demand	25,311	24,546	24,248	24,392	27,651	30,963	32,933	33,493	32,271	27,405	26,045	26,722
Firm purchases outside combined system	2,455	2,407	2,415	2,471	2,631	2,683	2,675	2,623	2,592	2,375	2,321	2,390
Combined system interruptible demand	177	177	177	177	177	187	187	187	187	187	177	177
Combined system adjusted monthly peak demand	22,679	21,962	21,656	21,744	24,843	28,093	30,071	30,683	29,492	24,843	23,547	24,155
Year: 1983												
1.1.1 Load characteristic, demand (MW)												
(AZ-NM) system peak demand	7,377	7,110	7,164	7,707	9,253	10,599	10,835	10,803	10,450	8,500	7,403	7,741
(SoCA-NV) system peak demand	18,732	18,194	17,833	17,519	19,317	21,370	23,148	23,810	22,894	19,731	19,339	19,647
Combined system peak demand	26,109	25,304	24,997	25,226	28,570	31,969	33,973	34,613	33,344	28,231	26,742	27,388
Firm sales outside combined system	128	128	128	31	31	31	31	31	31	31	131	131
Combined system monthly peak demand	26,237	25,432	25,125	25,257	28,601	32,000	34,004	34,644	33,375	28,262	26,873	27,519
Firm purchases outside combined system	2,438	2,422	2,398	2,159	2,315	2,304	2,345	2,312	2,318	2,128	2,123	2,156
Combined system interruptible demand	181	181	181	181	181	191	191	191	191	191	181	181
Combined system adjusted monthly peak demand	23,618	22,829	22,546	22,917	26,105	29,505	31,468	32,141	30,866	25,943	24,569	25,182

Table 1.1-4  
LOADS SUMMARY BY MONTH COMBINED  
ARIZONA-NEW MEXICO (AZ-NM) AND  
SOUTHERN CALIFORNIA-NEVADA (SoCA-NV)  
SYSTEMS AS REPORTED TO THE WSCC  
1982 THROUGH 1987  
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ARIZONA - NEW MEXICO & SOUTHERN CALIFORNIA - NEVADA

Table 1.1-4  
LOADS SUMMARY BY MONTH COMBINED  
ARIZONA-NEW MEXICO (AZ-NM) AND  
SOUTHERN CALIFORNIA-NEVADA (SoCA-NV)  
SYSTEMS AS REPORTED TO THE WSCC  
1982 THROUGH 1987  
Sheet 2 of 3

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Year: 1984												
1.1.1 Load characteristic, demand (MW)												
(AZ-NM) system peak demand	7,780	7,494	7,552	8,121	9,746	11,204	11,444	11,421	11,045	8,995	7,845	8,219
(SoCA-NV) system peak demand	19,387	18,836	18,445	18,137	20,207	22,290	24,107	24,749	23,800	20,492	20,148	20,408
Combined system peak demand	27,167	26,330	25,997	26,258	29,953	33,494	35,551	36,170	34,845	29,487	27,993	28,627
Firm sales outside combined system	131	131	131	35	35	35	35	35	35	35	135	135
Combined system monthly peak demand	27,298	26,461	26,128	26,293	29,988	33,529	35,586	36,205	34,880	29,522	28,128	28,762
Firm purchases outside combined system	2,101	2,119	2,056	2,140	2,406	2,394	2,396	2,347	2,330	2,103	2,129	2,103
Combined system interruptible demand	185	185	185	185	185	195	195	195	195	195	185	185
Combined system adjusted monthly peak demand	25,012	24,157	23,887	23,968	27,397	30,940	32,995	33,663	32,355	27,224	25,814	26,474
Year: 1985												
1.1.1 Load characteristic, demand (MW)												
(AZ-NM) system peak demand	8,326	8,083	8,238	8,842	10,541	12,040	12,294	12,267	11,854	9,637	8,362	8,738
(SoCA-NV) system peak demand	20,070	19,485	19,085	18,762	20,881	23,065	24,911	25,631	24,575	21,248	20,775	21,045
Combined system peak demand	28,396	27,568	27,323	27,604	31,422	35,105	37,205	37,898	36,429	30,885	29,137	29,783
Firm sales outside combined system	135	135	135	38	38	38	38	38	38	38	38	38
Combined system monthly peak demand	28,531	27,703	27,458	27,642	31,460	35,143	37,243	37,936	36,467	30,923	29,175	29,821
Firm purchases outside combined system	2,102	2,077	2,061	2,111	2,398	2,411	2,341	2,365	2,362	2,097	2,118	2,110
Combined system interruptible demand	277	339	439	449	451	465	465	465	445	375	289	279
Combined system adjusted monthly peak demand	26,152	25,287	24,958	25,082	28,611	32,267	34,437	35,106	33,660	28,451	26,768	27,432

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	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Year: 1986												
1.1.1 Load characteristic, demand (MW)												
(AZ-NM) system peak demand	8,744	8,492	8,638	9,260	11,094	12,678	12,949	12,921	12,460	10,107	8,764	9,163
(SoCA-NV) system peak demand	20,724	20,101	19,701	19,386	21,621	23,973	25,804	26,543	25,490	22,020	21,481	21,822
Combined system peak demand	29,468	28,593	28,339	28,646	32,715	36,651	38,753	39,464	37,950	32,127	30,245	30,985
Firm sales outside combined system	138	138	138	42	42	42	358	358	358	358	458	458
Combined system monthly peak demand	29,606	28,731	28,477	28,688	32,757	36,693	39,111	39,822	38,308	32,485	30,703	31,443
Firm purchases outside combined system	2,090	2,020	1,984	2,132	2,385	2,404	2,388	1,878	1,840	1,620	1,644	1,611
Combined system interruptible demand	313	383	473	473	538	565	569	569	523	413	308	303
Combined system adjusted monthly peak demand	27,203	26,328	26,020	26,083	29,834	33,724	36,154	37,375	35,945	30,452	28,751	29,529
Year: 1987												
1.1.1 Load characteristic, demand (MW)												
(AZ-NM) system peak demand	9,330	9,052	9,258	9,902	11,759	13,400	13,677	13,650	13,105	10,672	9,327	9,760
(SoCA-NV) system peak demand	21,481	20,724	20,412	20,080	22,391	24,812	26,712	27,521	26,411	22,807	22,336	22,520
Combined system peak demand	30,811	29,776	29,670	29,982	34,150	38,212	40,389	41,171	39,516	33,479	31,663	32,280
Firm sales outside combined system	458	458	458	362	362	362	677	677	677	677	777	777
Combined system monthly peak demand	31,269	30,234	30,128	30,344	34,512	38,574	41,066	41,848	40,193	34,156	32,440	33,057
Firm purchases outside combined system	1,555	1,404	1,470	1,583	1,816	1,792	1,801	1,239	1,215	980	1,031	990
Combined system interruptible demand	489	549	698	698	703	713	713	713	603	515	461	472
Combined system adjusted monthly peak demand	29,225	28,281	27,960	28,063	31,993	36,069	38,552	39,896	38,375	32,661	30,948	31,595

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Table 1.1-4  
LOADS SUMMARY BY MONTH COMBINED  
ARIZONA-NEW MEXICO (AZ-NM) AND  
SOUTHERN CALIFORNIA-NEVADA (SoCA-NV)  
SYSTEMS AS REPORTED TO THE WSCC  
1982 THROUGH 1987  
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PVNGS - 1,2 & 3 PARTICIPANTS

Month	MONTHLY PEAK DEMAND (MW)												
	1972	1973	Change (%)	1974	Change (%)	1975	Change (%)	1976	Change (%)	1977	Change (%)	1978	Change (%)
Jan	13457	14558	8.2	13607	-6.5	14478	6.4	14431	-0.3	15503	7.4	15664	1.0
Feb	13097	13910	6.2	12566	-9.7	13786	9.7	14433	4.7	14786	2.4	15262	3.2
Mar	12826	13918	8.5	12553	-9.8	13348	6.3	14527	8.8	14695	1.2	14700	0.0
Apr	13406	14094	5.1	13464	-4.5	13319	-1.1	14483	8.8	14973	3.4	14764	-1.4
May	15130	15941	5.4	14409	-9.6	14898	3.4	17038	14.4	16709	-1.9	18076	8.2
Jun	15873	18312	15.4	17875	-2.4	15903	-11.0	19990	25.7	18307	-8.4	20084	9.7
Jul	17468	17806	1.9	18227	2.4	18192	-0.2	19480	7.1	20346	4.4	21243	4.4
Aug	17368	17495	0.7	17319	-1.0	18586	7.3	19895	7.0	20186	1.5	20690	2.5
Sep	15992	16735	4.6	17852	6.7	18398	3.1	18795	2.2	20405	8.6	21588	5.8
Oct	14942	15472	3.5	16033	3.6	16205	1.1	16051	-1.0	16251	1.2	18216	12.1
Nov	13957	14509	4.0	13853	-4.5	14315	3.3	15849	10.7	15191	-4.2	15950	5.0
Dec	15104	13806	-8.6	14252	3.2	14749	3.5	15394	4.4	15594	1.3	17162	10.1
Month	MONTHLY ENERGY REQUIREMENTS (GWH)												
	1972	1973	Change (%)	1974	Change (%)	1975	Change (%)	1976	Change (%)	1977	Change (%)	1978	Change (%)
Jan	7242.8	7855.9	8.5	7286.9	-7.2	7757.7	6.5	7918.4	2.1	8263.9	4.4	8375.5	1.4
Feb	6719.5	6910.7	+2.8	6487.3	-6.1	6906.0	6.5	7299.4	5.7	7351.4	0.7	7501.5	2.0
Mar	7306.4	7688.4	5.2	7115.6	-7.5	7500.7	5.4	7996.8	6.6	8334.6	4.2	8210.1	-1.5
Apr	7017.8	7359.2	4.9	7003.7	-4.8	7347.5	4.9	7682.6	4.6	7998.0	4.1	7943.6	-0.7
May	7633.3	8078.3	5.8	7680.2	-4.9	7702.4	0.3	8252.7	7.1	8208.6	-0.5	8794.6	7.1
Jun	7944.1	8564.8	7.8	8347.6	-2.5	7974.8	-4.5	8931.2	12.0	9060.8	1.5	9654.1	6.5
Jul	8774.2	9045.4	3.1	8992.2	-0.6	8990.6	-0.0	9545.9	6.2	9827.4	2.9	10378.3	5.6
Aug	8814.8	9212.7	4.5	8835.4	-4.1	8942.1	1.2	9378.3	4.9	10263.3	9.4	10289.8	0.3
Sep	7861.9	8098.3	3.0	8398.7	3.7	8484.5	1.0	8548.4	0.8	8982.0	5.1	9505.4	5.8
Oct	7564.0	8086.8	6.9	7838.2	-3.1	7953.5	1.5	8240.2	3.6	8489.6	3.0	9154.6	7.8
Nov	7270.3	7512.2	3.3	7163.1	-4.6	7403.5	3.4	7834.7	5.8	7950.9	1.5	8443.2	6.2
Dec	7780.0	7292.1	-6.3	7644.7	4.8	7869.5	2.9	8264.6	5.0	8296.6	0.4	8982.7	8.3

Table 1.1-7  
COMPARISON OF MONTHLY PEAK DEMANDS  
AND ENERGY REQUIREMENTS  
1972 THROUGH 1978 (Sheet 1 of 7)

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Table 1.1-7  
COMPARISON OF MONTHLY PEAK DEMANDS  
AND ENERGY REQUIREMENTS  
Sheet 2 of 7

ARIZONA PUBLIC SERVICE COMPANY

Month	Monthly Peak Demand (MW)												
	1972	1973	Change (%)	1974	Change (%)	1975	Change (%)	1976	Change (%)	1977	Change (%)	1978	Change (%)
Jan	944	1052	11.4	1099	4.5	1264	15.0	1304	3.2	1397	7.1	1531	9.6
Feb	928	1037	11.7	1068	3.0	1147	7.4	1295	12.9	1361	5.1	1490	9.5
Mar	1002	1028	2.6	1149	11.8	1174	2.2	1354	15.3	1373	1.4	1370	-0.2
Apr	1053	1211	15.0	1302	7.5	1144	-12.1	1449	26.7	1651	13.9	1533	-7.1
May	1301	1554	19.4	1601	3.0	1563	-2.4	1758	12.5	1955	11.2	2020	3.3
Jun	1514	1786	18.0	2032	13.8	1790	-11.9	2114	18.1	2286	8.1	2356	3.1
Jul	1633	1809	10.8	1936	7.0	2008	3.7	2191	9.1	2346	7.1	2549	8.7
Aug	1659	1813	9.3	1873	3.3	2068	10.4	2121	2.6	2373	11.9	2373	-0.4
Sep	1549	1728	11.6	2008	16.2	1903	-5.2	2070	8.9	2372	14.6	2359	-0.5
Oct	1283	1432	11.6	1683	17.5	1646	-2.2	1466	-10.9	1775	21.1	2015	13.5
Nov	963	1127	17.0	1112	-1.3	1244	11.9	1399	12.5	1360	-2.8	1480	8.8
Dec	1087	1065	-2.0	1236	16.1	1232	-0.3	1354	9.9	1430	5.6	1726	20.7
Month	Monthly Energy Requirements (GWh)												
	1972	1973	Change (%)	1974	Change (%)	1975	Change (%)	1976	Change (%)	1977	Change (%)	1978	Change (%)
Jan	499.9	572.9	14.6	584.4	2.0	680.8	16.5	697.7	2.5	753.9	8.1	776.1	2.9
Feb	477.4	496.0	3.9	536.9	8.2	596.2	11.0	632.9	6.2	680.8	7.6	687.7	1.0
Mar	521.1	559.1	7.3	604.5	8.1	651.8	7.8	710.1	8.9	773.4	8.9	740.4	-4.3
Apr	502.0	546.6	8.9	602.5	10.2	619.9	2.9	673.4	8.6	766.0	13.8	745.6	-2.7
May	595.7	692.7	16.3	714.0	3.1	700.4	-1.9	792.1	13.1	791.4	-0.1	881.8	11.4
Jun	692.4	797.2	15.1	919.6	15.4	798.9	-13.1	925.6	15.9	1051.7	13.6	1099.0	4.5
Jul	829.4	910.4	9.8	951.3	4.5	985.0	3.5	1063.9	8.0	1184.3	11.3	1250.3	5.6
Aug	786.2	944.0	20.1	949.6	0.6	983.3	3.5	1068.4	8.7	1215.5	13.8	1189.4	-2.1
Sep	679.8	752.7	10.7	856.5	13.8	867.5	1.3	882.1	1.7	995.7	12.9	1035.2	4.0
Oct	549.8	667.7	21.4	713.5	6.9	701.9	-1.6	728.5	3.8	796.6	9.3	873.6	9.7
Nov	498.5	579.0	16.1	585.7	1.2	630.9	7.7	680.6	7.9	718.4	5.6	764.0	6.3
Dec	566.9	581.4	2.6	673.8	15.9	676.0	0.3	751.4	11.2	754.1	0.4	869.5	15.3

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Table 1.1-7  
COMPARISON OF MONTHLY PEAK DEMANDS  
AND ENERGY REQUIREMENTS  
Sheet 3 of 7

LOS ANGELES DEPARTMENT OF WATER AND POWER

Month	Monthly Peak Demand (MW)												
	1972	1973	Change (%)	1974	Change (%)	1975	Change (%)	1976	Change (%)	1977	Change (%)	1978	Change (%)
Jan	2899	3097	6.8	2586	-16.5	2755	6.5	2790	1.3	2961	6.1	2998	1.2
Feb	2799	2914	4.1	2356	-19.1	2658	12.8	2806	5.6	2798	-0.3	2910	4.0
Mar	2800	2968	6.0	2381	-19.8	2634	10.6	2758	4.7	2707	-1.8	2826	4.4
Apr	2776	2823	1.7	2543	-10.2	2636	3.6	2783	5.6	2677	-3.8	2767	3.4
May	3215	3165	-1.6	2539	-19.8	2826	11.3	3264	15.5	2974	-8.9	3398	14.2
Jun	3249	3679	13.2	3292	-10.5	2930	-11.0	3809	30.0	3189	-16.3	3680	15.4
Jul	3630	3561	-1.9	3500	-1.7	3466	-0.8	3634	4.8	3778	4.0	3912	3.5
Aug	3565	3492	-2.0	3259	-6.7	3531	8.3	3744	6.0	3700	-1.2	3814	3.1
Sep	3294	3293	0	3304	0.3	3594	8.8	3597	0.1	3769	4.8	4144	9.9
Oct	3155	3141	-0.4	3095	-1.5	3231	4.4	3232	0	3012	-6.8	3422	13.6
Nov	3021	3014	-0.2	2681	-11.0	2781	3.7	3168	13.9	3064	-3.3	2949	-3.8
Dec	3174	2827	-10.9	2727	-3.5	2903	6.4	2928	0.9	3000	2.4	3044	1.5
Month	Monthly Energy Requirements (GWh)												
	1972	1973	Change (%)	1974	Change (%)	1975	Change (%)	1976	Change (%)	1977	Change (%)	1978	Change (%)
Jan	1530	1621	5.9	1343	-17.1	1438	7.1	1531	6.5	1549	1.2	1574	1.6
Feb	1413	1439	1.8	1189	-17.4	1302	9.5	1424	9.3	1363	-4.3	1422	4.3
Mar	1532	1590	3.8	1323	-16.8	1429	8.0	1526	6.8	1534	0.5	1554	1.3
Apr	1449	1483	2.3	1281	-13.6	1407	9.8	1470	4.5	1438	-2.2	1499	4.2
May	1562	1562	0	1355	-13.2	1442	6.4	1532	6.2	1469	-4.1	1624	10.6
Jun	1592	1642	3.1	1442	-12.2	1429	-0.9	1643	15.0	1527	-7.1	1693	10.9
Jul	1723	1696	-1.6	1622	-4.4	1611	0.7	1714	6.4	1687	-1.6	1784	5.7
Aug	1757	1734	-1.3	1554	-10.4	1563	0.6	1680	7.5	1761	4.8	1764	0.2
Sep	1559	1540	-1.2	1506	-2.2	1555	3.2	1617	4.0	1567	-3.1	1735	10.7
Oct	1552	1624	4.6	1457	-10.3	1519	4.2	1609	5.9	1556	-3.3	1681	8.0
Nov	1519	1521	0.1	1348	-11.5	1429	6.0	1500	5.0	1486	-0.9	1534	3.2
Dec	1612	1427	-11.5	1424	-0.2	1528	7.3	1554	1.8	1560	0.4	1598	2.4

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Table 1.1-7  
COMPARISON OF MONTHLY PEAK DEMANDS  
AND ENERGY REQUIREMENTS  
Sheet 4 of 7

Month	Monthly Peak Demand (MW)												
	1972	1973	Change (%)	1974	Change (%)	1975	Change (%)	1976	Change (%)	1977	Change (%)	1978	Change (%)
Jan	426	462	8.5	457	(1.1)	492	7.7	495	.6	486	(1.9)	513	5.6
Feb	418	471	12.7	448	(5.1)	466	4.0	489	4.9	473	(3.4)	492	4.0
Mar	417	455	9.1	438	(3.9)	471	7.5	486	3.2	468	(3.8)	510	9.0
Apr	431	458	6.3	504	10.1	480	(5.0)	520	8.3	497	(4.6)	546	9.9
May	466	526	12.9	587	11.6	550	(6.7)	590	7.3	601	1.9	614	2.2
Jun	513	618	20.5	638	5.1	630	(1.3)	677	7.5	655	(3.3)	688	5.0
Jul	538	607	12.9	635	4.6	635	0	637	.3	636	(.2)	690	8.5
Aug	543	586	7.9	629	7.3	640	1.8	666	4.1	657	(1.4)	651	(.9)
Sep	501	585	16.8	600	2.6	615	2.5	595	(3.3)	622	4.5	617	(.8)
Oct	498	525	5.4	518	(1.4)	520	.4	504	(3.2)	527	4.6	527	0
Nov	447	485	8.5	478	(1.5)	490	2.5	537	9.6	490	(9.6)	509	3.9
Dec	472	466	(1.3)	505	8.4	506	.2	529	4.5	502	(5.4)	549	9.4
Month	Monthly Energy Requirements (GWh)												
	1972	1973	Change (%)	1974	Change (%)	1975	Change (%)	1976	Change (%)	1977	Change (%)	1978	Change (%)
Jan	226.4	257.5	13.7	258.5	.4	278.0	7.5	281.8	1.4	273.0	(3.2)	278.3	1.9
Feb	215.5	233.0	8.1	231.9	(.5)	242.5	4.6	259.6	7.1	241.0	(7.7)	250.0	3.7
Mar	229.4	253.2	12.4	246.6	(2.7)	259.5	5.2	276.4	6.5	269.0	(2.8)	274.0	1.9
Apr	225.2	247.7	10	251.4	1.5	258.0	2.6	273.8	6.1	262.0	(4.5)	275.0	5.0
May	245.6	271.0	10.3	295.1	8.9	280.1	(5.4)	295.6	5.5	289.0	(2.3)	305.0	5.5
Jun	259.6	297.6	14.6	324.5	9.4	321.9	(.8)	340.0	5.6	330.0	(2.9)	349.0	5.8
Jul	288.2	316.4	9.8	323.5	2.2	336.6	4.1	341.5	1.5	329.0	(3.7)	369.0	12.2
Aug	282.0	322.7	14.4	321.6	(.3)	344.8	7.2	359.3	4.2	353.0	(1.8)	345.0	(2.3)
Sep	251.6	296.5	17.9	285.5	(3.7)	299.2	4.8	298.1	(.4)	320.0	7.4	290.0	(9.4)
Oct	252.7	273.7	8.3	274.3	.2	281.6	2.7	277.0	(1.7)	274.0	(1.1)	286.0	4.4
Nov	239.2	257.6	7.7	259.0	.5	264.1	2.0	271.7	2.9	262.0	(3.7)	269.0	2.7
Dec	248.0	255.9	3.2	278.4	8.8	278.4	0	277.8	(.2)	271.0	(2.5)	291.0	7.4

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NEED FOR POWER

Table 1.1-7  
COMPARISON OF MONTHLY PEAK DEMANDS  
AND ENERGY REQUIREMENTS  
Sheet 5 of 7

PUBLIC SERVICE COMPANY OF NEW MEXICO													
Month	Monthly Peak Demand (MW)												
	1972	1973	Change (%)	1974	Change (%)	1975	Change (%)	1976	Change (%)	1977	Change (%)	1978	Change (%)
Jan	438.0	461.5	5.4	463	0.3	520	12.3	529	1.7	605	14.4	666	10.1
Feb	417.2	465.8	11.6	452	-3.0	500	10.6	527	5.4	607	15.2	649	6.9
Mar	403.2	436.2	8.2	423	-3.0	455	7.6	525	15.4	575	9.5	602	4.7
Apr	405.0	428.7	5.9	437	1.9	460	5.3	499	8.5	564	13.0	600	6.4
May	422.4	424.0	0.4	502	18.4	483	-3.8	543	12.4	646	19.0	641	-0.8
Jun	467.4	528.0	13.0	583.4	10.5	566	-3.0	624	10.2	687	10.1	787	14.6
Jul	491.7	533.0	8.4	564	5.8	579	2.7	633	9.3	694	9.6	809	16.6
Aug	489.5	510.0	4.2	548	7.5	586	6.9	627	7.0	715	14.0	787	10.1
Sep	434.4	479.0	10.3	548	14.4	582	6.2	581	0.2	664	14.3	742	11.7
Oct	441.0	442.0	0.2	476	7.7	489	2.7	538	10.0	595	10.6	688	15.6
Nov	460.9	464.0	0.7	480	3.4	537	11.9	608	13.2	620	2.0	705	13.7
Dec	475.4	481.0	1.2	508	5.6	547	7.7	632	15.5	648	2.5	741	14.4
Month	Monthly Energy Requirements (GWh)												
	1972	1973	Change (%)	1974	Change (%)	1975	Change (%)	1976	Change (%)	1977	Change (%)	1978	Change (%)
Jan	222.5	251.5	13.0	251.0	-0.2	297.9	18.7	293.9	-1.3	369.0	25.6	408.1	10.6
Feb	207.6	218.7	5.3	226.5	3.6	264.3	16.7	277.9	5.1	328.6	18.2	350.8	6.8
Mar	221.9	240.1	8.2	237.5	-1.1	285.4	20.2	307.3	7.7	399.2	29.9	352.7	-11.6
Apr	210.6	227.9	8.2	230.8	1.3	262.6	13.8	285.4	8.7	375.0	31.4	354.0	-5.6
May	229.0	244.6	6.8	258.1	5.5	266.9	3.4	307.0	15.0	397.2	29.4	374.8	-5.6
Jun	236.1	248.0	5.0	288.5	16.3	307.0	6.4	332.6	8.3	396.1	19.1	411.1	3.8
Jul	251.6	271.6	7.9	292.4	7.7	328.0	12.2	353.5	7.8	402.1	13.7	469.0	16.6
Aug	250.0	275.0	10.0	284.2	3.3	354.0	24.6	349.6	-1.2	414.8	18.6	445.4	7.4
Sep	226.5	241.1	6.4	259.7	7.7	273.8	5.4	316.2	15.5	362.3	14.6	394.2	8.8
Oct	231.5	224.4	-3.1	255.4	13.8	299.0	17.1	325.7	8.9	354.0	8.7	401.0	13.3
Nov	235.6	232.6	-1.3	252.4	8.5	271.5	7.6	335.4	23.5	343.5	2.4	403.2	17.4
Dec	248.1	237.8	-4.2	276.5	16.3	310.1	12.2	379.4	22.3	376.5	-0.8	438.2	16.4

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## NEED FOR POWER

## SALT RIVER PROJECT SYSTEM REQUIREMENTS AT SOURCE (Excludes Interruptible)

Table 1.1-7  
COMPARISON OF MONTHLY PEAK DEMANDS  
AND ENERGY REQUIREMENTS  
Sheet 6 of 7

Month	Monthly Peak Demand (MW)												
	1972	1973	Change (%)	1974	Change (%)	1975	Change (%)	1976	Change (%)	1977	Change (%)	1978	Change (%)
Jan	778	830	7	908	9	1058	17	1045	-1	1213	16	1207	-1
Feb	763	787	3	909	16	993	9	904	-10	1066	18	1115	5
Mar	809	812	0	852	5	955	12	1075	13	1104	3	971	-14
Apr	839	940	12	975	4	931	-5	1081	16	1244	15	1032	-21
May	1040	1271	22	1366	7	1300	-5	1436	10	1514	5	1510	0
Jun	1253	1448	16	1645	14	1460	-13	1685	15	1681	0	1747	4
Jul	1360	1446	6	1595	10	1598	0	1732	8	1675	-3	1854	11
Aug	1357	1435	6	1510	5	1634	8	1668	2	1683	0	1728	3
Sep	1251	1378	10	1602	16	1511	-6	1579	5	1731	10	1729	0
Oct	1004	1086	8	1306	20	1242	-5	1090	-14	1366	25	1503	10
Nov	740	838	13	872	4	921	6	1066	16	952	-12	1108	16
Dec	901	842	-7	1012	20	995	-2	1102	11	1089	-1	1469	35
Month	Monthly Energy Requirements (GWh)												
	1972	1973	Change (%)	1974	Change (%)	1975	Change (%)	1976	Change (%)	1977	Change (%)	1978	Change (%)
Jan	428	469	10	495	6	605	22	572	-6	612	7	599	-2
Feb	401	395	-2	456	15	523	15	497	-5	533	7	534	0
Mar	440	449	2	494	10	545	10	570	5	613	8	553	-11
Apr	429	434	1	503	16	532	6	537	0	588	10	553	-6
May	506	570	13	634	11	612	-4	657	7	612	-7	672	10
Jun	604	662	10	796	20	702	-13	770	10	823	7	855	4
Jul	716	762	6	818	7	840	3	893	6	884	-1	952	8
Aug	669	775	16	807	4	840	4	874	4	914	5	941	3
Sep	585	629	8	738	17	725	2	723	0	771	7	814	6
Oct	441	508	15	583	15	553	-5	564	2	622	10	678	9
Nov	408	450	10	482	7	494	2	530	7	526	0	577	10
Dec	468	484	3	583	20	545	-7	603	11	580	-4	692	19

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## SALT RIVER PROJECT SYSTEM REQUIREMENTS AT SOURCE (Excludes Interruptible)

Month	Monthly Peak Demand (MW)												
	1972	1973	Change (%)	1974	Change (%)	1975	Change (%)	1976	Change (%)	1977	Change (%)	1978	Change (%)
Jan	778	830	7	908	9	1058	17	1045	-1	1213	16	1207	-1
Feb	763	787	3	909	16	993	9	904	-10	1066	18	1115	5
Mar	809	812	0	852	5	955	12	1075	13	1104	3	971	-14
Apr	839	940	12	975	4	931	-5	1081	16	1244	15	1032	-21
May	1040	1271	22	1366	7	1300	-5	1436	10	1514	5	1510	0
Jun	1253	1448	16	1645	14	1460	-13	1685	15	1681	0	1747	4
Jul	1360	1446	6	1595	10	1598	0	1732	8	1675	-3	1854	11
Aug	1357	1435	6	1510	5	1634	8	1668	2	1683	0	1728	3
Sep	1251	1378	10	1602	16	1511	-6	1579	5	1731	10	1729	0
Oct	1004	1086	8	1306	20	1242	-5	1090	-14	1366	25	1503	10
Nov	740	838	13	872	4	921	6	1066	16	952	-12	1108	16
Dec	901	842	-7	1012	20	995	-2	1102	11	1089	-1	1469	35
Month	Monthly Energy Requirements (GWh)												
	1972	1973	Change (%)	1974	Change (%)	1975	Change (%)	1976	Change (%)	1977	Change (%)	1978	Change (%)
Jan	428	469	10	495	6	605	22	572	-6	612	7	599	-2
Feb	401	395	-2	456	15	523	15	497	-5	533	7	534	0
Mar	440	449	2	494	10	545	10	570	5	613	8	553	-11
Apr	429	434	1	503	16	532	6	537	0	588	10	553	-6
May	506	570	13	634	11	612	-4	657	7	612	-7	672	10
Jun	604	662	10	796	20	702	-13	770	10	823	7	855	4
Jul	716	762	6	818	7	840	3	893	6	884	-1	952	8
Aug	669	775	16	807	4	840	4	874	4	914	5	941	3
Sep	585	629	8	738	17	725	2	723	0	771	7	814	6
Oct	441	508	15	583	15	553	-5	564	2	622	10	678	9
Nov	408	450	10	482	7	494	2	530	7	526	0	577	10
Dec	468	484	3	583	20	545	-7	603	11	580	-4	692	19

Table 1.1-7  
COMPARISON OF MONTHLY PEAK DEMANDS  
AND ENERGY REQUIREMENTS  
Sheet 6 of 7

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Table 1.1-8A  
 RANGE OF CAPACITY FACTORS  
 FOR INTERMEDIATE AND BASE LOADED UNITS (Sheet 1 of 8)  
 ARIZONA PUBLIC SERVICE

Power Plant and Unit.	Type	Function	Range of Capacity Factors (%)
Four Corners 1	Steam	Base	59-72
Four Corners 2	Steam	Base	57-74
Four Corners 3	Steam	Base	59-72
Cholla 1	Steam	Base	61-75
Ocotillo 1	Steam	Intermediate	15-27
Ocotillo 2	Steam	Intermediate	15-27
Saguaro 1	Steam	Intermediate	5-16
Saguaro 2	Steam	Intermediate	5-16
Yucca 1	Steam	Intermediate	34-47
Four Corners 4	Steam	Base	40-69 (c)
Four Corners 5	Steam	Base	43-69 (c)
Navajo 1	Steam	Base	58-78 (c)
Navajo 2	Steam	Base	58-78 (c)
Navajo 3	Steam	Base	58-79 (c)
West Phoenix CC 1	Comb. Cycle	Intermediate	2-13
West Phoenix CC 2	Comb. Cycle	Intermediate	2-13
West Phoenix CC 3	Comb. Cycle	Intermediate	2-13
Cholla 2	Steam	Base	62-78 (c)
Cholla 3	Steam	Base	68-81 (c)
Cholla 4	Steam	Base	63-74 (c)
Palo Verde 1	Steam	Base	58-84 (c)
Palo Verde 2	Steam	Base	58-84 (c)
Palo Verde 3	Steam	Base	58-84 (c)
Future Coal	Steam	Intermediate	33-57
(a) Person Units 1&2 reclassified as peaking units in 1980 - no capacity factor data available.			
(b) Projects delayed - no data available.			
(c) Range represents a composite of the individual ranges calculated by the joint owners of these units.			

Table 1.1-8A  
 RANGE OF CAPACITY FACTORS  
 FOR INTERMEDIATE AND BASE LOADED UNITS (Sheet 2 of 8)  
 LOS ANGELES DEPARTMENT OF WATER AND POWER (Page 1 of 2)

Power Plant and Unit	Type	Function	Range of Capacity Factors (%)
PNW	Hydro	Base	42-44
Owens Valley	Hydro	Base	52
Aqueduct	Hydro	Base	83
Harbor 1	Steam	Intermediate	0
Harbor 2	Steam	Intermediate	0
Harbor 3	Steam	Intermediate	1
Harbor 4	Steam	Intermediate	1-2
Harbor 5	Steam	Intermediate	0-1
Valley 1	Steam	Intermediate	1-6
Valley 2	Steam	Intermediate	1-6
Valley 3	Steam	Intermediate	5-14
Valley 4	Steam	Intermediate	11-24
Scattergood 1	Steam	Base	25-50
Scattergood 2	Steam	Base	34-59
Scattergood 3	Steam	Base	26-81
Haynes 1	Steam	Base	37-68
Haynes 2	Steam	Base	39-74
Haynes 3	Steam	Base	54-68
Haynes 4	Steam	Base	49-69
Haynes 5	Steam	Base	55-79
Haynes 6	Steam	Base	56-77
Mohave 1	Steam	Base	42-65 (c)
Mohave 2	Steam	Base	38-65 (c)
Navajo 1	Steam	Base	58-78 (c)
Navajo 2	Steam	Base	58-78 (c)
Navajo 3	Steam	Base	55-79 (c)
Coronado 1	Steam	Base	71-81
Coronado 2	Steam	Base	72-80

Table 1.1-8A

## RANGE OF CAPACITY FACTORS

FOR INTERMEDIATE AND BASE LOADED UNITS (Sheet 3 of 8)

LOS ANGELES DEPARTMENT OF WATER AND POWER (Page 2 of 2)

Power Plant and Unit	Type	Function	Range of Capacity Factors (%)
Intermountain 1	Steam	Base	62-67
Intermountain 2	Steam	Base	59-68
Intermountain 3	Steam	Base	58-67
Intermountain 4	Steam	Base	58-69
Palo Verde 1	Steam	Base	58-84 (c)
Palo Verde 2	Steam	Base	58-84 (c)
Palo Verde 3	Steam	Base	58-84 (c)



Table 1.1-8A  
 RANGE OF CAPACITY FACTORS  
 FOR INTERMEDIATE AND BASE LOADED UNITS (Sheet 4 of 8)  
 EL PASO ELECTRIC COMPANY

Power Plant and Unit	Type	Function	Range of Capacity Factors (%)
Rio Grande	Steam	Base	33
Newman 1	Steam	Base	36
Newman 2	Steam	Base	46
Newman 3	Steam	Base	60
Newman 4	Steam	Base	62
Four Corners 4	Steam	Base	40-69 (c)
Four Corners 5	Steam	Base	43-69 (c)
Palo Verde 1	Steam	Base	58-84 (c)
Palo Verde 2	Steam	Base	58-84 (c)
Palo Verde 3	Steam	Base	58-84 (c)

Table 1.1-8A  
 RANGE OF CAPACITY FACTORS  
 FOR INTERMEDIATE AND BASE LOADED UNITS (Sheet 5 of 8)  
 PUBLIC SERVICE COMPANY OF NEW MEXICO

Power Plant and Unit	Type	Function	Range of Capacity Factors (%)
Person 1	Steam	Peaking	(a)
Person 2	Steam	Peaking	(a)
Person 3	Steam	Intermediate	13-22
Person 4	Steam	Intermediate	20-30
Reeves 1	Steam	Base	20-48
Reeves 2	Steam	Base	29-49
Reeves 3	Steam	Base	32-52
Four Corners 4	Steam	Base	40-69 <sup>(c)</sup>
Four Corners 5	Steam	Base	43-69 <sup>(c)</sup>
San Juan 1	Steam	Base	62-74
San Juan 2	Steam	Base	56-73
San Juan 3	Steam	Base	64-74
San Juan 4	Steam	Base	61-75
Palo Verde 1	Steam	Base	58-84 <sup>(c)</sup>
Palo Verde 2	Steam	Base	58-84 <sup>(c)</sup>
Palo Verde 3	Steam	Base	58-84 <sup>(c)</sup>
Pumped Storage 1 & 2	Hydro	Intermediate	(b)
New Mexico Station	Steam	Base	(b)

RANGE OF CAPACITY FACTORS  
FOR INTERMEDIATE AND BASE LOADED UNITS (Sheet 6 of 8)  
SALT RIVER PROJECT

Power Plant and Unit	Type	Function	Range of Capacity Factors (%)
Agua Fria 1	Steam	Intermediate	6-25
Agua Fria 2	Steam	Intermediate	4-17
Agua Fria 3	Steam	Intermediate	20-38
Kyrene 1	Steam	Intermediate	0-2
Kyrene 2	Steam	Intermediate	2-6
Four Corners 4	Steam	Base	40-69 (c)
Four Corners 5	Steam	Base	43-69 (c)
Mohave 1	Steam	Base	42-65 (c)
Mohave 2	Steam	Base	38-65 (c)
Navajo 1	Steam	Base	58-78 (c)
Santan 1	Comb. Cycle	Intermediate	1-5
Santan 2	Comb. Cycle	Intermediate	1-5
Santan 3	Comb. Cycle	Intermediate	1-5
Santan 4	Comb. Cycle	Intermediate	1-5
Navajo 2	Steam	Base	58-78 (c)
Hayden 2	Steam	Base	75-86
Navajo 3	Steam	Base	55-79 (c)
Craig 1	Steam	Base	67-78
Coronado 1	Steam	Intermediate	39-58
Craig 2	Steam	Base	66-78
Coronado 2	Steam	Intermediate	38-58
Palo Verde 1	Steam	Base	58-84 (c)
Palo Verde 2	Steam	Base	58-84 (c)
Palo Verde 3	Steam	Base	58-84 (c)



Table 1.1-8A  
 RANGE OF CAPACITY FACTORS  
 FOR INTERMEDIATE AND BASE LOADED UNITS (Sheet 7 of 8)  
 SOUTHERN CALIFORNIA EDISON (Page 1 of 2)

Power Plant and Unit	Type	Function	Range of Capacity Factors (%)
Southern Hydro	Hydro	Int/Base	62-69
Bishop Hydro	Hydro	Int/Base	49-56
Northern Hydro	Hydro	Int/Base	58-73
Redondo 1-4	Steam	Intermediate	8-28
Redondo 5,6	Steam	Intermediate	3-38
Highgrove 1-4	Steam	Intermediate	43-64
Etiwanda 1,2	Steam	Intermediate	8-28
Etiwanda 3,4	Steam	Intermediate	38-62
El Segundo 1,2	Steam	Intermediate	3-38
El Segundo 3,4	Steam	Intermediate	38-62
Alamitos 1,2	Steam	Intermediate	3-38
Alamitos 3,4	Steam	Intermediate	38-62
Alamitos 5,6	Steam	Intermediate	43-64
San Bernardino 1,2	Steam	Intermediate	8-28
Huntington Beach 1,4	Steam	Intermediate	21-50
Mandalay 1,2	Steam	Intermediate	21-50
Cool Water 1,2	Steam	Intermediate	8-28
Garden State	Comb. Turb.	Intermediate	N/A
San Onofre 1	Nuclear	Base	65-75
Long Beach 10	Steam	Intermediate	8-28
Long Beach 11	Steam	Intermediate	8-28
Four Corners 4	Steam	Base	40-69 <sup>(c)</sup>
Four Corners 5	Steam	Base	43-69 <sup>(c)</sup>

Table 1.1-8A  
 RANGE OF CAPACITY FACTORS  
 FOR INTERMEDIATE AND BASE LOADED UNITS (Sheet 8 of 8)  
 SOUTHERN CALIFORNIA EDISON (Page 2 of 2)

Power Plant and Unit	Type	Function	Range of Capacity Factors (%)
Mohave 1	Steam	Base	42-65 <sup>(c)</sup>
Mohave 2	Steam	Base	38-65 <sup>(c)</sup>
Ormond Beach 1	Steam	Intermediate	39-57
Ormond Beach 2	Steam	Intermediate	39-57
Long Beach 1-9	Comb. Cycle	Intermediate	34
Cool Water 3,4	Comb. Cycle	Intermediate	25-45
Co-Generation	Co-Gen.	Base	N/A
San Onofre 2	Nuclear	Base	60-70
San Onofre 3	Nuclear	Base	60-70
Axis Steam	Steam	Intermediate	N/A
Palo Verde 1	Nuclear	Base	58-84 <sup>(c)</sup>
Palo Verde 2	Nuclear	Base	58-84 <sup>(c)</sup>
Palo Verde 3	Nuclear	Base	58-84 <sup>(c)</sup>
Geothermal 1-4	Geothermal	Base	75
Combined Cycle	Comb. Cycle	Intermediate	0
California Coal 1	Steam	Base	0
California Coal 2	Steam	Base	0
Combustion Turbines	Comb. Turb.	Peaking	1-3

## NEED FOR POWER

Table 1.1-11 .  
 COMPARISON OF PARTICIPANTS GENERATING CAPACITY,  
 LOAD, AND ENERGY GENERATION (Sheet 1 of 6)  
 ARIZONA PUBLIC SERVICE

Year	Total Resources Minus Firm Purchases (MW)	Total Projected Load Minus Firm Purchases (MW)	Inter- ruptible Load (MW)	Energy Generation (GWH)
1981	3412	2715	-	12656
1982	3311	2860	-	13754
1983	3573	2962	4	14304
1984	3808	3068	6	14985
1985	3816	3182	13	15670
1986	3923	3319	17	16087
1987	4163	3474	17	17331
1988	4368	3676	27	18601
1989	4610	3847	30	19511
1990	4850	4011	30	20541



Table 1.1-11  
COMPARISON OF PARTICIPANTS GENERATING CAPACITY,  
LOAD, AND ENERGY GENERATION (Sheet 2 of 6)  
LOS ANGELES DEPARTMENT OF WATER AND POWER

Year	Generating Capacity (MW)	Peak Demand (MW)	Energy Generation (GWH)
1981	5684	4220	14317
1982	5684	4351	14932
1983	5971	4223	16068
1984	5974	4292	16486
1985	6051	4382	16488
1986	6019	4453	16576
1987	6231	4536	16811
1988	6485	4636	17148
1989	6632	4737	17383
1990	6988	4862	17723

Table 1.1-11  
COMPARISON OF PARTICIPANTS GENERATING CAPACITY,  
LOAD, AND ENERGY GENERATION. (Sheet 3 of 6)  
EL PASO ELECTRIC

Year	Generating Capacity (MW)	Peak Demand (MW)	Energy Generation (GWH)
1981	895	742	4139
1982	920	776	4217
1983	1095	809	4346
1984	1289	847	4566
1985	1283	892	4804
1986	1477	936	5053
1987	1502	983	5313
1988	1502	1030	5591
1989	1484	1085	5884
1990	1468	1141	6191

Table 1.1-11  
COMPARISON OF PARTICIPANTS GENERATING CAPACITY,  
LOAD, AND ENERGY GENERATION (Sheet 4 of 6)  
PUBLIC SERVICE OF NEW MEXICO

Year	Generating Capacity (MW)	Peak Demand (MW)	Energy Generation (GWH)
1981	1235	997	6563
1982	1273	1061	8015
1983	1342	1086	9126
1984	1331	1109	9961
1985	1465	1187	10127
1986	1560	1257	10295
1987	1665	1344	10424
1988	1785	1441	10362
1989	1855	1518	10240
1990	2068	1599	10475

Table 1.1-11  
COMPARISON OF PARTICIPANTS GENERATING CAPACITY,  
LOAD, AND ENERGY GENERATION (Sheet 5 of 6)  
SALT RIVER PROJECT

Year	Generating Capacity (MW)	Peak Demand (MW)	Energy Generation (GWH)
1981	3300	2263	10368
1982	3221	2360	11579
1983	3576	2462	12510
1984	3932	2605	13243
1985	3869	2703	13572
1986	4179	2822	13782
1987	4179	2905	14080
1988	4179	3015	14399
1989	4179	3121	14744
1990	4179	3225	15193



Table 1.1-11  
 COMPARISON OF PARTICIPANTS GENERATING CAPACITY,  
 LOAD, AND ENERGY GENERATION (Sheet 6 of 6)  
 SOUTHERN CALIFORNIA EDISON

Year	Generating Capacity (MW)	Peak Demand (MW)	Energy Generation (GWH)
1981	15471	13274	62970
1982	16184	13647	64300
1983	17446	13895	66980
1984	17837	14305	68590
1985	17535	14735	70380
1986	17889	15185	72210
1987	18491	15635	74290
1988	18941	16125	76440
1989	19582	16599	78720
1990	20232	17129	81110

Table 1.1-12  
 SCPPA MEMBERS LOADS AND RESOURCES (Sheet 1 of 11)  
 CITY OF ANAHEIM  
 ELECTRIC UTILITY SYSTEM  
 (CALENDAR YEAR)

	Actual	Projected									
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Energy Requirements (GWh)...	1826	1948	2055	2163	2270	2359	2443	2516	2588	2658	2721
Peak Load (MW).....	407.5	428.0	449.8	472.9	495.6	515.3	532.2	547.4	562.2	576.4	589.9
Resources:											
San Onofre Units #2 & #3..	-	-	34.8	69.5	69.5	69.5	69.5	69.5	69.5	69.5	69.5
IPP Units #1 - #4.....	-	-	-	-	-	-	76.7	153.4	230.1	306.8	306.8
SCPPA-Palo Verde											
Units #1 - #3.....	-	-	-	5.6	11.3	11.3	16.9	16.9	16.9	16.9	16.9
Purchases.....	<u>407.5</u>	<u>428.0</u>	<u>422.3</u>	<u>413.5</u>	<u>431.8</u>	<u>451.5</u>	<u>406.2</u>	<u>363.5</u>	<u>320.4</u>	<u>276.8</u>	<u>290.3</u>
Total.....	407.5	428.0	457.1	488.6	512.6	532.3	569.3	603.3	636.9	670.0	683.5
Margin for Reserves/Losses..	-	-	7.3	15.7	17.0	17.0	37.1	55.9	74.7	93.6	93.6
Percent Margin.....	-	-	1.6	3.3	3.4	3.3	7.0	10.2	13.3	16.2	15.9

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Table 1.1-12  
 SCPPA MEMBERS LOADS AND RESOURCES (Sheet 2 of 11)  
 CITY OF AZUSA  
 ELECTRIC UTILITY SYSTEM  
 (CALENDAR YEAR)

	Actual	Projected (1)									
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Energy Requirements (GWh)...	166.0	183.8	190.0	196.1	202.4	208.6	215.7	223.1	230.7	238.5	246.6
Peak Load (MW).....	39.0	42.4	43.8	45.2	46.7	48.1	49.8	51.5	53.2	55.0	56.9
Peak Resources:											
SCPPA:											
Palo Verde.....	-	-	-	.8	1.5	1.5	2.3	2.3	2.3	2.3	2.3
SCE Purchases (2).....	<u>39.0</u>	<u>42.4</u>	<u>43.8</u>	<u>44.6</u>	<u>45.5</u>	<u>46.9</u>	<u>48.0</u>	<u>49.7</u>	<u>51.4</u>	<u>53.2</u>	<u>55.1</u>
Total Resources (MW).....	39.0	42.4	43.8	45.4	47.0	48.4	50.3	52.0	53.7	55.5	57.4
Margin for Reserves/Losses..	0	0	0	0.2	0.3	0.3	0.5	0.5	0.5	0.5	0.5
Percent Margin.....	0	0	0	0.4	0.6	0.6	1.0	1.0	0.9	0.9	0.9

(1) - Load Forecast prepared June 13, 1980.

(2) - Southern California Edison provides for reserves and losses.

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Table 1.1-12  
 SPCPA MEMBERS LOADS AND RESOURCES (Sheet 3 of 11)  
 CITY OF BANNING  
 ELECTRIC UTILITY SYSTEM  
 (CALENDAR YEAR)

	<u>Actual</u>	<u>Projected</u>									
	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
Energy Requirements (GWh)...	65.6	68.5	70.3	70.4	74.7	76.6	78.7	80.7	82.9	85.0	87.1
Peak Load (MW).....	18.1	16.9	17.4	18.0	18.5	19.1	19.6	20.2	20.7	21.3	21.9
Peak Resources:											
SCPPA:											
Palo Verde.....	-	-	-	.8	1.5	1.5	2.3	2.3	2.3	2.3	2.3
SCE Purchases (1).....	<u>18.1</u>	<u>16.9</u>	<u>17.4</u>	<u>17.4</u>	<u>17.3</u>	<u>17.9</u>	<u>17.8</u>	<u>18.4</u>	<u>18.9</u>	<u>19.5</u>	<u>20.1</u>
Total Resources (MW).....	18.1	16.9	17.4	18.2	18.8	19.4	20.1	20.7	21.2	21.8	22.4
Margin for Reserves/Losses	0	0	0	0.2	0.3	0.3	0.5	0.5	0.5	0.5	0.5
Percent Margin.....	0	0	0	1.1	1.6	1.6	2.6	2.5	2.4	2.3	2.3

(1) - Southern California Edison provides for reserves and losses.



Table 1.1-12  
 SCPPA MEMBERS LOADS AND RESOURCES (Sheet 4 of 11)  
 CITY OF BURBANK  
 ELECTRIC UTILITY SYSTEM  
 (CALENDAR YEAR)

	Actual	Projected (1)									
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Energy Requirements (GWh)...	875	901	928	956	985	1014	1040	1066	1092	1120	1148
Peak Load (MW).....	203	209	215	222	228	235	241	247	253	259	266
Resources:											
On-Site:											
Magnolia Unit #3.....	20	20	20	20							
Magnolia Unit #4.....	28	28	28	28	28	28	28	28			
Olive Unit #1.....	42	42	42	42	42	42	42	42	42	42	42
Olive Unit #2.....	58	58	58	58	58	58	58	58	58	58	58
Magnolia Unit #5.....	22	22	22	22	22	22	22	22	22	22	22
Olive Unit #3.....	19	19	19	19	19	19	19	19	19	19	19
Olive Unit #4.....	33	33	33	33	33	33	33	33	33	33	33
Subtotal.....	222	222	222	222	202	202	202	202	174	174	174
Off-Site:											
Hoover.....	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
BPA.....	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0
Subtotal.....	47.1	47.1	47.1	47.1	47.1	47.1	47.1	47.1	47.1	47.1	47.1
Projects:											
Intermountain Coal.....	-	-	-	-	-	-	-	12.8	25.6	38.3	51.1
SCPPA-Palo Verde.....	-	-	-	3.0	6.0	6.0	9.0	9.0	9.0	9.0	9.0
White Pine Coal.....	-	-	-	-	-	-	-	-	-	-	9.7
AEPCO Coal.....	-	-	-	-	-	-	-	-	25.0	25.0	50.0
Subtotal.....	0	0	0	3	6	6	9	21.8	59.6	72.3	119.8
Total Resources (MW)	269	269	269	272	255	255	258	271	281	293	341
Margin for Reserves/Losses..	66	60	54	50	27	20	17	24	28	34	75
Percent Margin.....	32.5	28.7	25.1	22.5	11.8	8.5	7.1	9.7	11.1	13.1	28.2

(1) - Load Forecast prepared May 28, 1981

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Table 1.1-12  
 SCLPA MEMBERS LOADS AND RESOURCES (Sheet 5 of 11)  
 CITY OF COLTON  
 ELECTRIC UTILITY SYSTEM  
 (CALENDAR YEAR)

	<u>Actual</u>	<u>Projected (1)</u>									
	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
Energy Requirements (GWh)...	113.5	120.3	127.8	135.5	143.2	151.4	159.2	166.9	174.2	181.2	187.7
Peak Load (MW).....	28.6	29.2	31.0	32.9	34.8	36.8	38.7	40.5	42.3	44.0	45.6
Peak Resources:											
SCLPA:											
Palo Verde.....	-	-	-	.8	1.5	1.5	2.3	2.3	2.3	2.3	2.3
SCE Purchases (2).....	<u>28.6</u>	<u>29.2</u>	<u>31.0</u>	<u>32.3</u>	<u>33.6</u>	<u>35.6</u>	<u>36.9</u>	<u>38.7</u>	<u>40.5</u>	<u>42.2</u>	<u>43.8</u>
Total Resources (MW).....	28.6	29.2	31.0	33.1	35.1	37.1	39.2	41.0	42.8	44.5	46.1
Margin for Reserves/Losses..	0	0	0	0.2	0.3	0.3	0.5	0.5	0.5	0.5	0.5
Percent Margin.....	0	0	0	0.6	0.9	0.8	1.3	1.2	1.2	1.1	1.1

(1) - Load Forecast prepared June 13, 1980.

(2) - Southern California Edison provides for reserves and losses.

Table 1.1-12  
 SCPPA MEMBERS LOADS AND RESOURCES (Sheet 6 of 11)  
 CITY OF GLENDALE  
 ELECTRIC UTILITY SYSTEM  
 (CALENDAR YEAR)

	Actual	Projected (1)									
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Energy Requirements (GWh)...	774	789	818	841	865	890	915	940	967	994	1022
Peak Load (MW).....	189	195	201	207	213	220	226	233	240	248	255
Resources: (2)											
Grayson Power Plant No. 3.	21	21	21	21	21	21	21	21	0	0	0
Grayson Power Plant No. 4.	47	47	47	47	47	47	47	47	47	47	47
Grayson Power Plant No. 5.	49	49	49	49	49	49	49	49	49	49	49
Grayson Power Plant No. 6.	23	23	23	23	23	23	23	23	23	23	23
Grayson Power Plant No. 7.	30	30	30	30	30	30	30	30	30	30	30
Grayson Power Plant No. 8.	98	98	98	98	98	98	98	98	98	98	98
Hoover (3).....	18	18	18	18	18	18	18	18	18	18	18
BPA Peaking Exchange (4)...	50	50	50	50	50	50	50	50	50	50	50
Intermountain Power Proj..	0	0	0	0	0	0	11	23	35	47	47
Excess IPP.....	0	0	0	0	0	0	3	6	9	12	12
Arizona Electric Power Cooperative Project.....	0	0	0	0	0	0	0	0	25	25	50
White Pine.....	0	0	0	0	0	0	0	0	0	9	18
SCPPA-Palo Verde (5).....	0	0	0	3	6	6	9	9	9	9	9
Total Resources (MW)....	336	336	336	339	342	342	359	374	393	417	451
Margin for Reserves/Losses..	147	141	135	132	129	122	133	141	153	169	196
Percent Margin.....	78	72	67	64	61	55	59	61	64	68	77

- (1) - Forecast prepared June 1, 1981.  
 (2) - Capacity reduced by transmission losses.  
 (3) - Hoover contract subject to renewal in 1987.  
 (4) - BPA contract subject to renewal in 1986.  
 (5) - Does not include transmission losses.

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Table 1.1-12  
 SCPPA MEMBERS LOADS AND RESOURCES (Sheet 7 of 11)  
 CITY OF PASADENA  
 ELECTRIC UTILITY SYSTEM  
 (CALENDAR YEAR)

	Actual	Projected (1)									
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Energy Requirements (GWh)...	844	982	1009	1030	1086	1126	1163	1202	1246	1292	1341
Peak Load (MW).....	197	215	215	218	225	232	239	246	254	263	272
Resources: (2)											
Broadway 1.....	45	45	45	45	45	45	45	45	45	45	0
Broadway 2.....	45	45	45	45	45	45	45	45	45	45	45
Broadway 3.....	71	71	71	71	71	71	71	71	71	71	71
Glenarm 9.....	45	45	45	0	0	0	0	0	0	0	0
Gas Turbine 1.....	26	26	26	26	26	26	26	26	26	26	26
Gas Turbine 2.....	26	26	26	26	26	26	26	26	26	26	26
Hoover.....	11	11	11	11	11	11	11	11	11	11	11
Azusa.....	15	15	15	15	15	15	15	15	15	15	15
BPA.....	30	30	30	30	30	30	30	30	30	30	30
Intermountain Power Proj..	-	-	-	-	-	-	-	23	46	70	94
White Pine.....	-	-	-	-	-	-	-	-	-	-	8
Arizona Electric Power Cooperative Project.....	-	-	-	-	-	-	-	-	-	23	23
IPP Excess Power.....	-	-	-	-	-	-	-	19	29	39	38
SCPPA-Palo Verde.....	-	-	-	2	5	5	8	8	8	8	8
Total.....	314	314	314	271	274	274	277	319	352	409	395
Margin for Reserves/Losses..	117	99	99	53	49	42	38	73	98	146	123
Percent Margin.....	59	46	46	24	22	-8	16	30	39	56	45

(1) - January 16, 1981 forecast. Revision currently in progress.

(2) - Capacity reduced by transmission losses.

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Table 1.1-12  
 SCPPA MEMBERS LOADS AND RESOURCES (Sheet 8 of 11)  
 CITY OF RIVERSIDE  
 ELECTRIC UTILITY SYSTEM  
 (CALENDAR YEAR)

	Actual	Projected									
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Energy Requirements (GWh)...	1079	1137	1186	1218	1256	1294	1332	1373	1413	1461	1505
Peak Load (MW).....	312.8	315.0	325.0	330.0	339.0	352.0	363.0	375.0	389.0	405.0	424.0
Resources:											
San Onofre Units #2 & #3..	-	-	19.7	39.4	39.4	39.4	39.4	39.4	39.4	39.4	39.4
IPP Units #1 - #4.....	-	-	-	-	-	-	51.1	102.3	153.4	204.5	204.5
SCCPA-Palo Verde											
Units #1 - #3.....	-	-	-	3.8	7.5	7.5	11.3	11.3	11.3	11.3	11.3
Purchases.....	<u>312.8</u>	<u>315.0</u>	<u>309.5</u>	<u>296.0</u>	<u>302.2</u>	<u>315.2</u>	<u>284.5</u>	<u>257.9</u>	<u>233.1</u>	<u>210.6</u>	<u>229.6</u>
Total.....	312.8	315.0	329.2	339.2	349.1	362.1	386.3	410.9	437.2	465.8	484.8
Margin for Reserves/Losses..	-	-	4.2	9.2	10.1	10.1	23.3	35.9	48.2	60.8	60.8
Percent Margin.....	-	-	1.3	2.7	2.9	2.9	6.4	9.6	12.4	15.0	14.3

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Table 1.1-12  
 SCPPA MEMBERS LOADS AND RESOURCES (Sheet 9 of 11)  
 CITY OF VERNON  
 ELECTRIC UTILITY SYSTEM  
 (CALENDAR YEAR)

	Actual	Projected									
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Energy Requirements (GWh)...	1222	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Peak Load (MW).....	236	230	230	230	230	230	230	230	230	230	230
Resources:											
Diesel #1.....	-	-	-	5	5	5	5	5	5	5	5
Diesel #2.....	-	-	-	5	5	5	5	5	5	5	5
Diesel #3.....	-	-	-	5	5	5	5	5	5	5	5
Diesel #4.....	-	-	5	5	5	5	5	5	5	5	5
Diesel #5.....	-	5	5	5	5	5	5	5	5	5	5
SCPPA-Palo Verde 1.....	-	-	-	3	3	3	3	3	3	3	3
SCPPA-Palo Verde 2.....	-	-	-	-	4	4	4	4	4	4	4
SCPPA-Palo Verde 3.....	-	-	-	-	-	-	3	3	3	3	3
SCE-Purchase (1).....	<u>236</u>	<u>226</u>	<u>222</u>	<u>207</u>	<u>204</u>	<u>204</u>	<u>201</u>	<u>201</u>	<u>201</u>	<u>201</u>	<u>201</u>
Total.....	236	231	232	235	236	236	236	236	236	236	236
Margin for Reserves/Losses..	0	1	2	5	6	6	6	6	6	6	6

(1) - Southern California Edison provides for reserves and losses.

Table 1.1-12  
 SCPPA MEMBERS LOADS AND RESOURCES (Sheet 10 of 11)  
 IMPERIAL IRRIGATION DISTRICT ELECTRIC UTILITY SYSTEM  
 (CALENDAR YEAR)

Page 1 of 2

	Actual	Projected									
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Energy Requirements (GWh)...	1439	1540	1601	1665	1732	1801	1873	1948	2026	2107	2191
Peak Load (MW).....	368	391	421	447	464	482	502	522	543	565	587
Resources:											
Steam:											
Unit 1.....	20	20	20	20	20	20	20	20	20	20	20
Unit 2.....	32	32	32	32	32	32	32	32	32	32	32
Unit 3.....	48	48	48	48	48	48	48	48	48	48	48
Unit 4.....	80	80	80	80	80	80	80	80	80	80	80
Subtotal.....	180	180	180	180	180	180	180	180	180	180	180
Gas Turbine:											
Brawley C.T. 1.....	9	9	9	9	9	9	9	9	9	9	9
Brawley C.T. 2.....	9	9	9	9	9	9	9	9	9	9	9
Coachella C.T. 1.....	20	20	20	20	20	20	20	20	20	20	20
Coachella C.T. 2.....	20	20	20	20	20	20	20	20	20	20	20
Coachella C.T. 3.....	20	20	20	20	20	20	20	20	20	20	20
Coachella C.T. 4.....	20	20	20	20	20	20	20	20	20	20	20
Rockwood C.T. 1.....	25	25	25	25	25	25	25	25	25	25	25
Rockwood C.T. 2.....	-	25	25	25	25	25	25	25	25	25	25
Unnamed C.T.....	-	-	-	50	50	50	50	50	50	50	50
Subtotal.....	123	148	148	198	198	198	198	198	198	198	198
Diesel:											
Brawley 1.....	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75
Brawley 2.....	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75
Brawley 3.....	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75
Brawley 4.....	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Brawley 5.....	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Brawley 6.....	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Brawley 7.....	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625
Brawley 8.....	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625
Subtotal.....	12	12	12	12	12	12	12	12	12	12	12

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Table 1.1-12  
 SPCPA MEMBERS LOADS AND RESOURCES (Sheet 11 of 11)  
 IMPERIAL IRRIGATION DISTRICT ELECTRIC UTILITY SYSTEM  
 (CALENDAR YEAR)

Page 2 of 2

	Actual	Projected									
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Hydro:											
Drop No. 4 Unit 1.....	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
Drop No. 4 Unit 2.....	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
Drop No. 3 Unit 1.....	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
Drop No. 3 Unit 2.....	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
Drop No. 2 Unit 1.....	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
Drop No. 2 Unit 2.....	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
Pilot Knob Unit 1.....	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Subtotal.....	39	39	39	39	39	39	39	39	39	39	39
Geothermal:											
Additions (1).....	0	0	0	0	0	3	6	9	12	15	18
Nuclear:											
Palo Verde 1.....	-	-	-	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Palo Verde 2.....	-	-	-	-	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Palo Verde 3.....	-	-	-	-	-	-	3.5	3.5	3.5	3.5	3.5
Subtotal.....	0	0	0	4	7	7	11	11	11	11	11
Other:											
WAP-Parker-Davis.....	33	33	33	33	33	33	33	33	33	33	33
SCE-Axis Plant.....	25	25	25	25	25	25	25	25	25	25	25
Purchases.....	40	40	40	40	40	100	100	100	250	250	261
Subtotal	98	98	98	98	98	158	158	158	308	308	319
Total.....	452	477	477	531	534	597	604	607	760	763	777
Margin for Reserves/Losses..	84	86	56	84	70	115	102	85	217	198	190
Percent Margin.....	23	22	13	19	15	24	20	16	40	35	32

(1) - Expected to be met by participation in one or more of the following projects: Heber Geothermal, Brawley or Niland.

Table 1.1-13  
M-S-R MEMBER LOADS AND RESOURCES (Sheet 1 of 3)  
MODESTO IRRIGATION DISTRICT  
ELECTRIC UTILITY SYSTEM  
(CALENDAR YEAR)

	<u>Actual</u>		<u>Projected</u>								
	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
Energy Requirements (Gwh).....	1268	1358	1400	1446	1492	1539	1595	1652	1712	1773	1837
Peak Load (MW).....	351.7	344	398	414	431	447	465	483	503	523	544
Resources: (MW)											
Existing											
Hydro .....	54.4	54.2	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5
Gas Turbine .....	39.0	53.4	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0
Proposed											
Small hydro (a) .....	-	-	0.5	6.0	19.4	30.8	32.8	32.8	32.8	32.8	32.8
Geothermal .....	-	-	-	-	-	-	82.5	82.5	82.5	82.5	82.5
Harry Allen .....	-	-	-	-	-	-	30.0	60.0	90.0	120.0	120.0
ANPP .....	-	-	-	41.7	83.4	83.4	125.0	125.0	125.0	125.0	125.0
Purchases.....	<u>258.3</u>	<u>236.4</u>	<u>272.2</u>	<u>248.1</u>	<u>218.2</u>	<u>224.6</u>	<u>152.0</u>	<u>151.0</u>	<u>149.0</u>	<u>148.0</u>	<u>144.0</u>
Total .....	351.7	344.0	420.2	443.3	468.5	486.3	569.8	598.8	626.8	655.8	651.8
Margin for Reserve/ Losses.....	0	0	22.2	29.3	37.5	39.3	104.8	115.8	123.8	132.8	107.8
Percent Margin.....	0	0	5.6	7.1	8.7	8.8	22.5	24.0	24.6	25.4	19.8

- a. Consists of at least seven separate small hydroelectric projects.
- b. Addition of additional geothermal, cogeneration, wind, hydroelectric, and coal resources is under study.



Table 1.1-13  
M-S-R MEMBER LOADS AND RESOURCES (Sheet 2 of 3)  
CITY OF SANTA CLARA  
ELECTRIC UTILITY SYSTEM  
(CALENDAR YEAR)

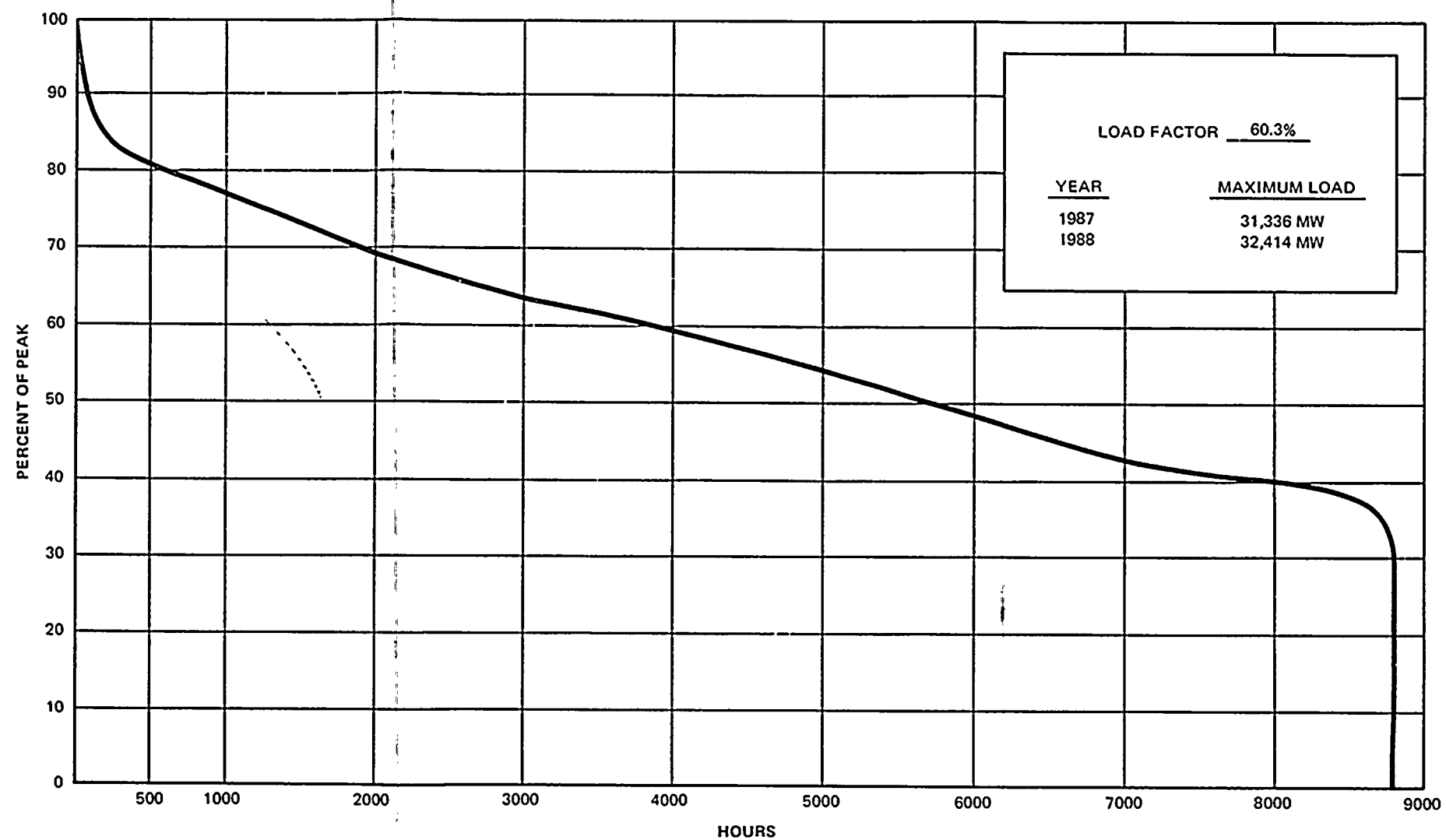
	<u>Actual</u>		<u>Projected</u>								
	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
Energy Requirements (Gwh).....	1609	1754	1858	1959	2052	2142	2234	2326	2415	2516	2612
Peak Load (MW).....	265.6	297	314	331	347	262	378	394	409	426	442
Resources <sup>(b)</sup> : (MW)											
Thermal											
Geothermal, NCPA....	-	-	60.4	60.4	60.4	60.4	60.4	78.4	78.4	78.4	78.4
Gas Turbine - Cogen ..	-	5.8	5.8	5.8	45.8	45.8	45.8	45.8	45.8	45.8	45.8
Small Hydro											
Black Butte.....	-	-	-	-	-	6.8	6.8	6.8	6.8	6.8	6.8
Stony Gorge.....	-	-	-	-	-	3.9	3.9	3.9	3.9	3.9	3.9
Large Hydro											
Calaveras.....	-	-	-	-	-	62.0	62.0	62.0	62.0	62.0	62.0
Purchases.....	<u>265.6</u>	<u>291.2</u>	<u>261.0</u>	<u>278.0</u>	<u>266.6</u>	<u>224.8</u>	<u>255.6</u>	<u>253.6</u>	<u>268.6</u>	<u>345.1</u>	<u>345.1</u>
Total.....	265.6	297.0	327.2	344.2	372.8	403.7	434.5	450.5	465.5	542.0	542.0
Margin for Reserve/ Losses.....	0	0	13.2	13.2	25.8	41.7	56.5	56.5	56.5	116.0	100.0
Percent Margin.....	-	-	4.2	4.0	7.4	11.5	14.9	14.3	13.8	27.2	22.6

NEED FOR POWER

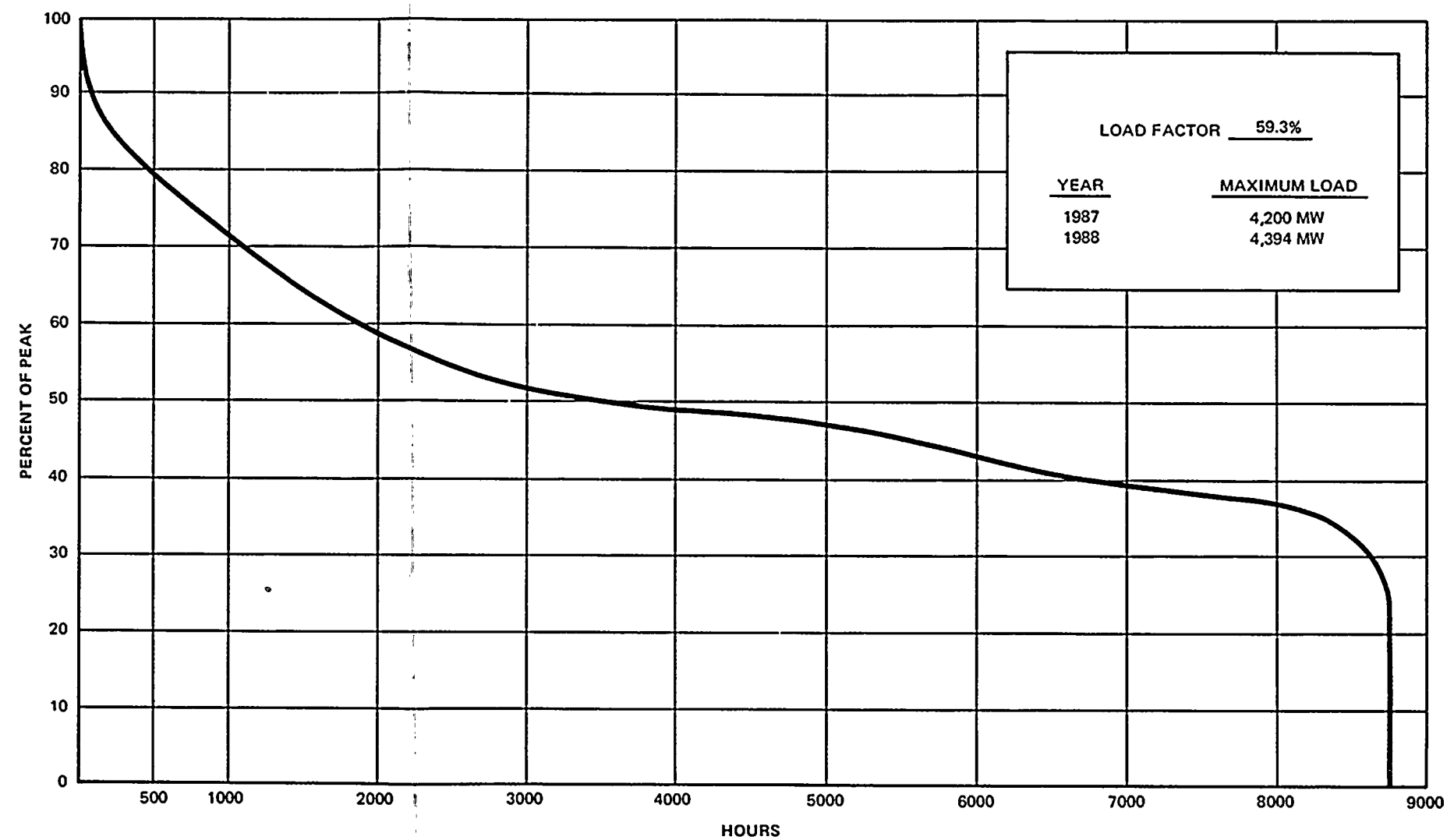
PVNGS ER-OL


Table 1.1-13  
M-S-R MEMBER LOADS AND RESOURCES (Sheet 3 of 3)  
CITY OF REDDING.  
ELECTRIC UTILITY SYSTEM  
(CALENDAR YEAR)

	<u>Actual</u>		<u>Projected</u>								
	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
Energy Requirements (Gwh).....	444.6	481.4	511.2	536.8	562.4	587.9	609.2	630.5	651.8	673.1	690.2
Peak Load (MW).....	105	113	120	126	132	138	143	148	153	158	162
Resources: (MW)											
Thermal											
ANPP.....	-	-	-	8.3	16.6	16.6	25.0	25.0	25.0	25.0	25.0
Harry Allen.....	-	-	-	-	-	-	5.0	10.0	15.0	20.0	20.0
Geothermal.....	-	-	-	-	-	-	16.5	16.5	16.5	16.5	16.5
Small Hydro											
Whiskeytown.....	-	-	-	-	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Saeltzer.....	-	-	-	-	-	0.9	0.9	0.9	0.9	0.9	0.9
Lake Redding.....	-	-	-	-	-	-	14.0	14.0	14.0	14.0	14.0
Lake Red Bluff.....	-	-	-	-	-	-	14.0	14.0	14.0	14.0	14.0
North Fork.....	-	-	-	-	-	-	-	6.0	6.0	6.0	6.0
Cottonwood.....	-	-	-	-	-	-	-	-	-	-	9.0
Large Hydro											
Calaveras.....	-	-	-	-	-	18.8	18.8	18.8	18.8	18.8	18.8
Purchases.....	<u>105</u>	<u>113</u>	<u>120</u>	<u>117</u>	<u>115.4</u>	<u>115.4</u>	<u>115.4</u>	<u>115.4</u>	<u>115.4</u>	<u>115.4</u>	<u>115.4</u>
Total.....	105	113	120	126	136.0	155.7	213.6	224.6	229.6	234.6	243.6
Margin for Reserve/ Losses.....	-	-	-	-	4.0	17.7	70.6	76.6	76.6	76.6	81.6
Percent Margin.....	-	-	-	-	3.0	12.8	49.4	51.8	50.1	48.5	50.4







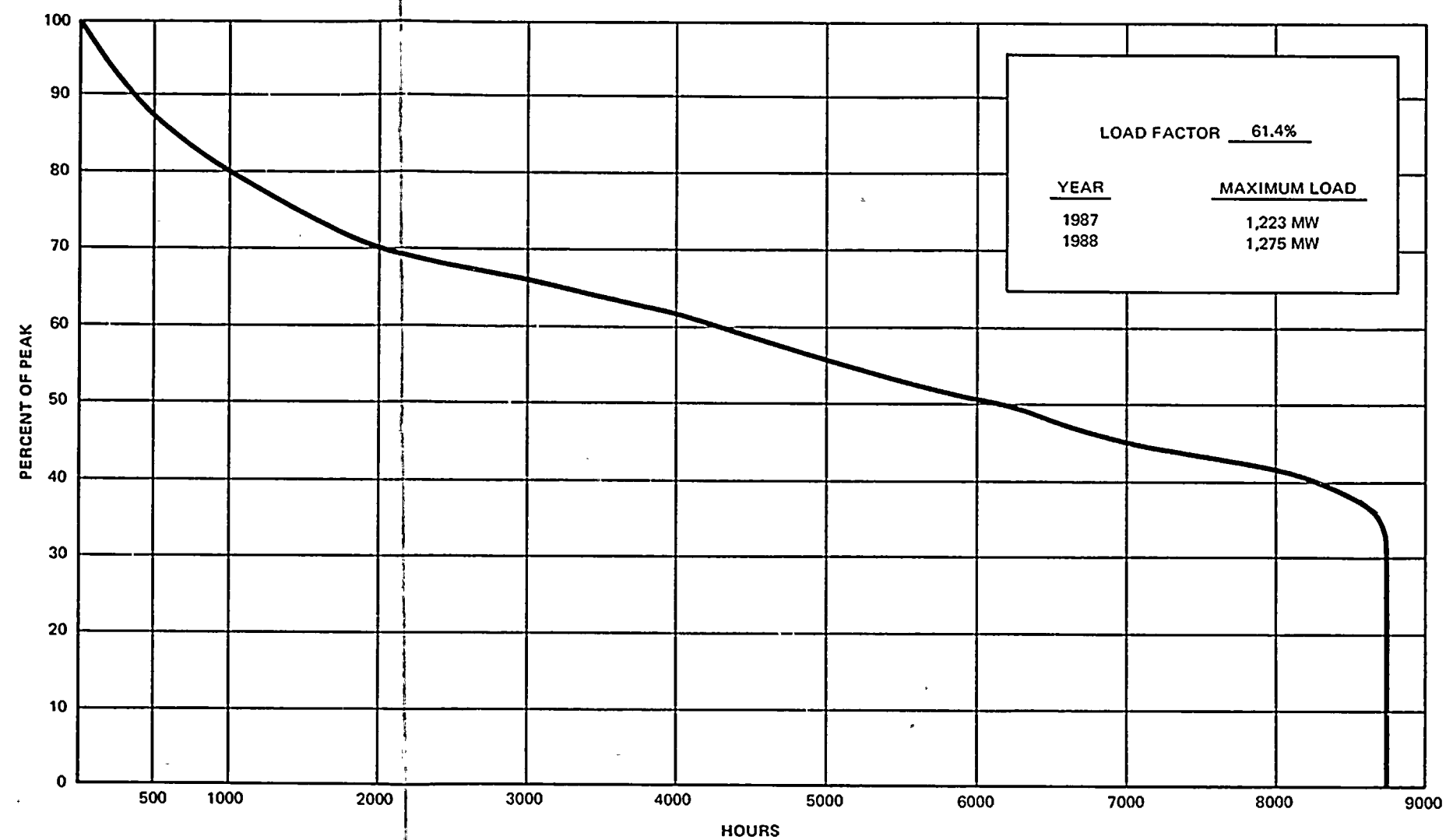
 Palo Verde Nuclear Generating Station  
ER-OL


Arizona Public Service 1987-88 Coincident  
Load Duration Curve

Figure 1.1-2





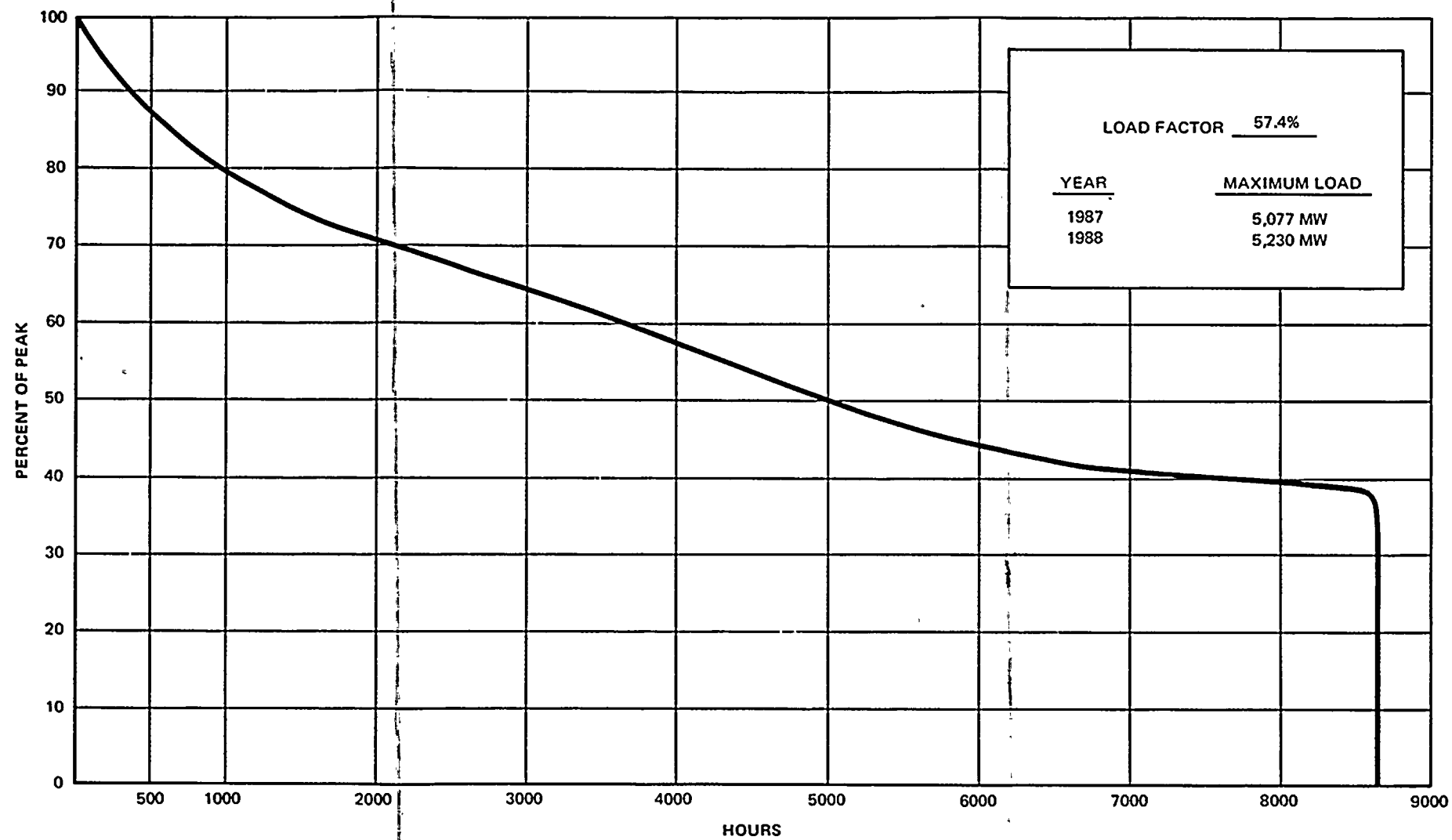


 Palo Verde Nuclear Generating Station  
ER-OL

El Paso Electric 1987-88 Coincident  
Load Duration Curve

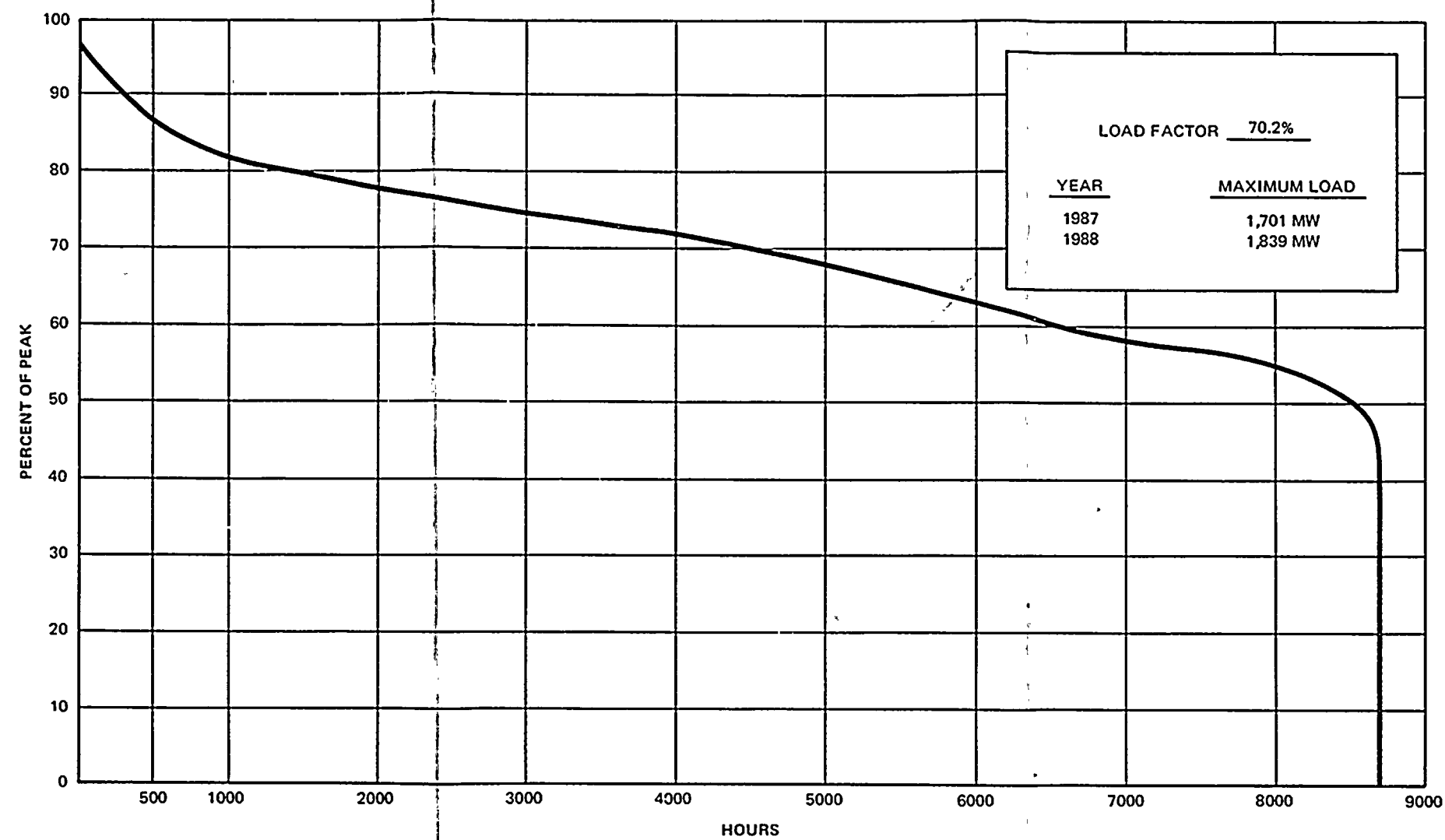
Figure 1.1-3



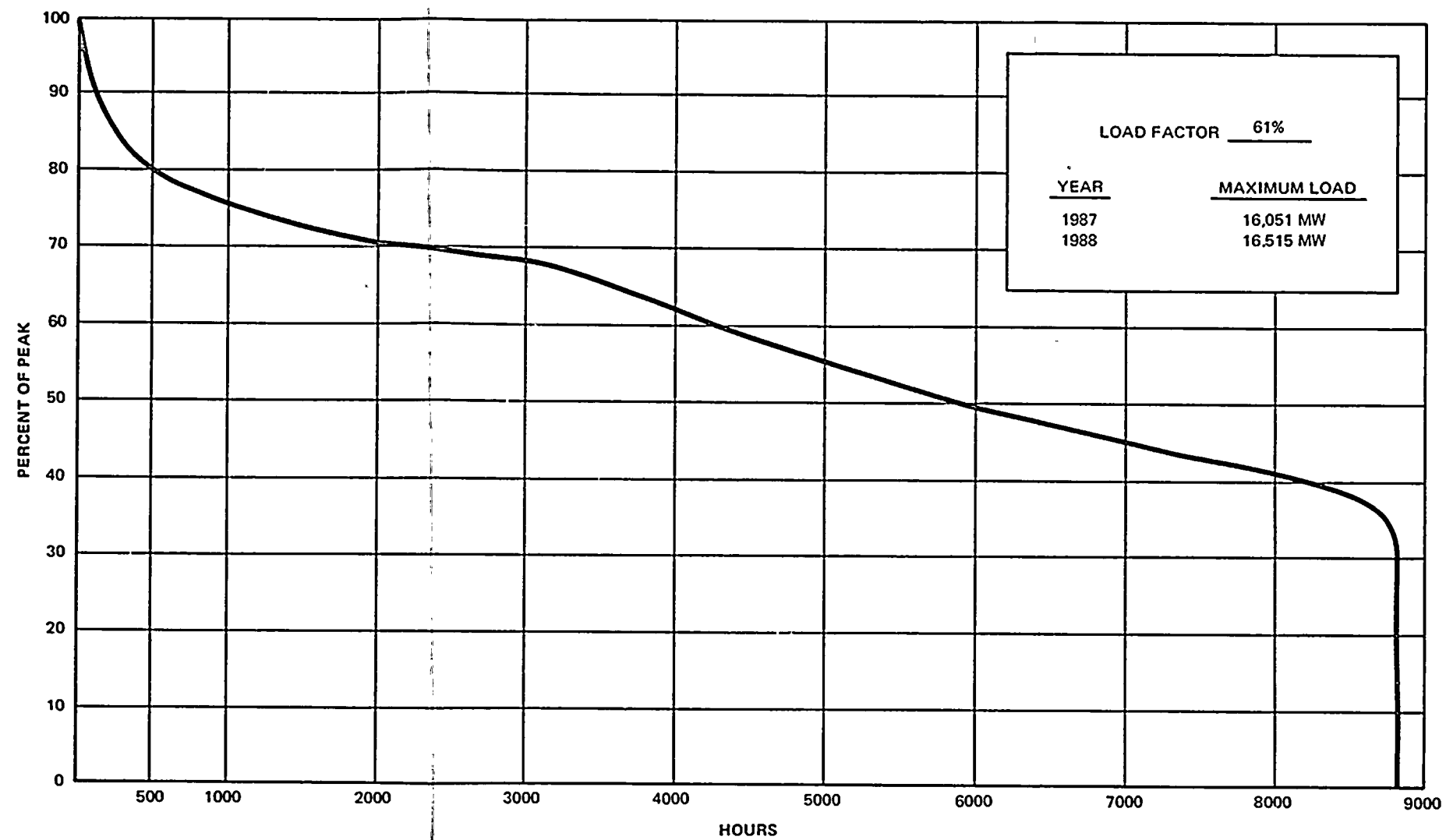











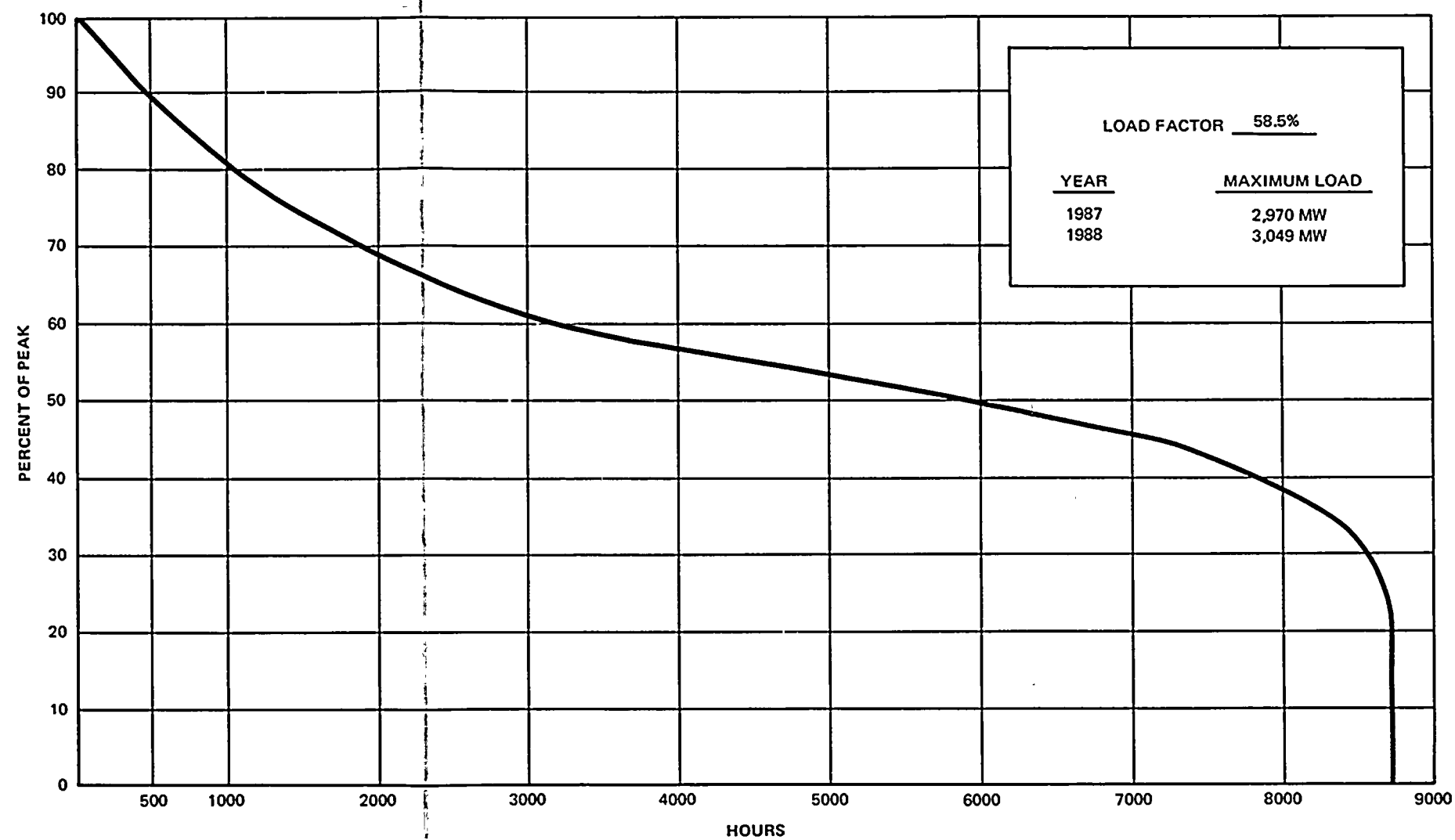




**Palo Verde Nuclear Generating Station  
ER-OL**

Southern California Edison 1987-88  
 Coincident Load Duration Curve  
 Figure 1.1-7





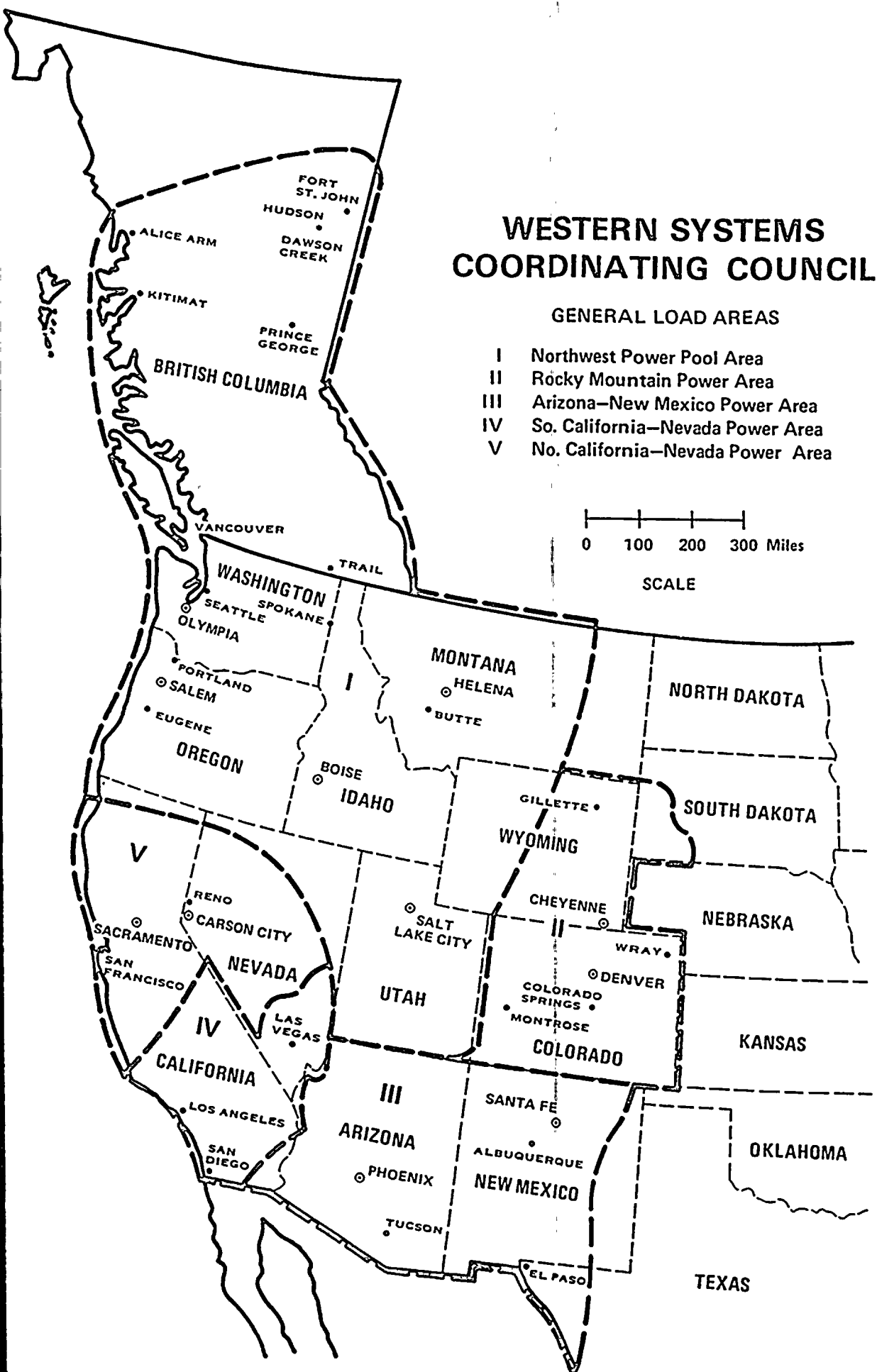



 **Palo Verde Nuclear Generating Station  
ER-OL**

Salt River Project 1987-88 Coincident  
Load Duration Curve

Figure 1.1-6





 **Palo Verde Nuclear Generating Station  
ER-OL**

**GEOGRAPHICAL BOUNDARIES  
OF WSCC SUBAREAS**

**Figure 1.1-3**





Table 1.1-7  
COMPARISON OF MONTHLY PEAK DEMANDS  
AND ENERGY REQUIREMENTS  
Sheet 7 of 7

SOUTHERN CALIFORNIA EDISON													
Month	Monthly Peak Demand (MW)												
	1972	1973	Change (%)	1974	Change (%)	1975	Change (%)	1976	Change (%)	1977	Change (%)	1978	Change (%)
Jan	7972	8655	8.6	8094	(6.5)	8389	3.6	8268	(1.4)	8841	6.9	8749	(1.0)
Feb	7772	8235	6.0	7333	(11.0)	8022	9.4	8412	4.9	8481	0.8	8606	1.5
Mar	7812	8209	5.1	7310	(11.0)	7659	4.8	8329	8.7	8468	1.7	8421	(0.6)
Apr	7902	8233	4.2	7703	(6.4)	7668	(0.5)	8151	6.3	8340	2.3	8286	(0.6)
May	8686	9001	3.6	7814	(13.2)	8176	4.6	9447	15.5	9019	(4.5)	9893	9.7
Jun	8877	10253	15.5	9685	(5.5)	8527	(12.0)	11081	30.0	9809	(11.5)	10826	10.4
Jul	9815	9850	0.4	9997	1.5	9906	(0.9)	10653	7.5	11217	5.3	11429	1.9
Aug	9754	9659	(1.0)	9500	(1.6)	10127	6.6	11069	9.3	11058	(0.1)	11337	2.5
Sep	8963	9272	3.4	9790	5.6	10193	4.1	10373	1.8	11247	8.4	11997	6.7
Oct	8561	8846	3.3	8819	(0.3)	9077	2.9	9221	1.6	8976	(2.7)	10061	12.1
Nov	8325	8581	3.1	8230	(4.1)	8342	1.4	9071	8.7	8705	(4.0)	9199	5.7
Dec	8995	8125	(9.7)	8264	1.7	8566	3.7	8849	3.3	8925	0.9	9633	7.9
Month	Monthly Energy Requirements (GWh)												
	1972	1973	Change (%)	1974	Change (%)	1975	Change (%)	1976	Change (%)	1977	Change (%)	1978	Change (%)
Jan	4336	4684	(8.0)	4355	(7.0)	4458	2.4	4542	1.9	4707	3.6	4740	0.7
Feb	4005	4129	3.1	3847	(6.8)	3978	3.4	4208	5.8	4205	(0.1)	4257	1.2
Mar	4362	4597	5.4	4210	(8.4)	4330	2.9	4607	6.4	4746	3.0	4736	(0.2)
Apr	4202	4420	5.2	4135	(6.4)	4268	3.2	4443	4.1	4569	2.8	4518	(1.1)
May	4495	4738	5.4	4424	(6.6)	4401	(0.5)	4669	6.1	4650	(0.4)	4937	6.2
Jun	4560	4918	7.9	4577	(6.9)	4416	(3.5)	4920	11.4	4933	0.3	5247	6.4
Jul	4966	5089	2.5	4985	(2.0)	4890	(1.9)	5180	5.9	5341	3.1	5554	4.0
Aug	5069	5162	1.8	4919	(4.7)	4857	(1.3)	5047	3.9	5605	11.1	5605	0.0
Sep	4560	4639	1.7	4753	2.5	4764	0.2	4712	(1.1)	4966	5.4	5237	5.5
Oct	4537	4789	5.6	4555	(4.9)	4599	1.0	4736	3.0	4887	3.2	5235	7.1
Nov	4370	4472	2.3	4236	(5.3)	4314	1.8	4517	4.7	4615	2.2	4896	6.1
Dec	4637	4306	(7.1)	4409	2.4	4532	2.8	4699	3.7	4755	1.2	5094	7.1

Peak demand is SCE's net main system peak demand.  
Energy requirement is SCE's net main system transmitted energy.

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PALO VERDE NUCLEAR GENERATING STATION

Year	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
1.1.2 POWER SUPPLY (MW)																					
(1) PEAKING																					
APS	311	311	113	151	345	614	649	624	624	619	619	619	619	619	619	669	669	769	769	769	769
EPE	140	140	140	140	139	66	77	43	109	109	110	110	183	151	151	117	125	125	125	157	240
LADWP	510	510	545	611	641	971	1303	1278	1331	1327	1327	1327	1327	1327	1327	1327	1327	1327	1323	1313	1303
PNM	44	44	44	44	44	64	64	64	58	53	53	53	42	42	31	31	31	31	31	20	20
SCE	515	950	1083	1106	1106	1106	1086	1188	1195	1195	1195	1195	1195	1235	1235	935	935	935	969	800	904
SRP	112	104	101	105	345	514	642	712	644	644	644	657	657	657	657	657	657	657	657	657	657
TOTAL PEAKING	1632	2059	2026	2157	2620	3335	3821	3909	3961	3947	3948	3961	4023	4031	4020	3736	3744	3844	3874	3716	3893
(2) INTERMEDIATE																					
APS	254	254	452	452	452	452	452	468	693	693	693	693	693	693	693	693	693	693	693	693	693
EPE	119	111	136	136	206	196	143	301	141	56	213	158	158	276	390	420	578	492	525	504	271
LADWP	969	969	969	969	962	972	968	968	968	968	924	924	924	924	924	924	924	924	924	924	924
PNM	114	114	114	114	114	114	114	114	114	96	96	96	96	96	96	96	96	96	96	246	360
SCE	8266	8478	8478	8478	9228	9978	9978	9871	10417	10777	10994	11025	11050	11050	11050	11050	11050	11730	12040	12480	12480
SRP	498	498	498	504	504	504	504	796	790	790	790	794	1284	1284	1494	1494	1494	1494	1494	1494	1494
TOTAL INTERMEDIATE	10220	10424	10647	10653	11466	12216	12159	12518	13123	13380	13710	13690	14205	14323	14647	14677	14835	15429	15772	16341	16222
(3) BASE LOAD																					
APS	690	816	936	937	937	915	1038	1143	1248	1248	1483	1483	1725	2072	2428	2424	2780	2780	3136	3136	3614
EPE	236	285	366	366	411	478	496	496	690	725	577	617	636	606	637	637	645	731	898	898	1098
LADWP	2024	2407	2375	2197	2377	2816	3040	3189	3421	3421	3421	3451	3456	3456	3456	3456	3916	3843	3483	4099	4355
PNM	175	279	383	383	383	383	548	548	548	709	693	693	933	933	1529	1529	1659	1659	1789	1789	2025
SCE	408	408	1190	1616	2110	2042	2170	2271	2394	2399	2399	2399	2416	2550	2604	4314	4514	4255	4503	4807	5483
SRP	0	79	159	236	306	318	481	644	807	1015	1016	1017	1133	1249	1467	1464	1761	1755	2052	2052	2052
TOTAL BASE LOAD	3533	4274	5409	5735	6524	6952	7773	8291	9108	9517	9589	9660	10299	11041	13121	13824	15275	15023	15861	16781	18627
INSTALLED RESOURCE	15385	16757	18082	18545	20610	22503	23753	24718	26192	26844	27247	27311	28527	29395	31788	32237	33854	34296	35507	36838	38742
NON-FIRM PURCHASES OUTSIDE ANPP	135	130	124	123	331	153	348	369	179	179	179	179	179	179	178	178	178	56	56	180	56
NON-FIRM SALES OUTSIDE ANPP	3	3	3	2	2	2	2	0	0	0	0	0	0	100	0	0	0	0	0	0	170
CAPABILITY	15517	16884	18203	18666	20939	22654	24099	25087	26371	27023	27426	27490	28706	29474	31966	32415	34032	34352	35563	37018	38628

Table 1.1-8  
CAPABILITY OF RESOURCES  
1968 THROUGH 1988 (Sheet 1 of 13)  
PVNGS 1,2,&3 PARTICIPANTS

PRC  
APERTURE  
CARD

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Table 1.1-8  
CAPABILITY OF RESOURCES  
1968 THROUGH 1988 (Sheet 1 of 13)  
PVNGS 1,2,&3 PARTICIPANTS

PALO VERDE NUCLEAR GENERATING STATION

Year	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
1.1.2 POWER SUPPLY (MW)																					
(1) PEAKING																					
APS	311	311	113	151	345	614	649	624	624	619	619	619	619	619	619	669	669	769	769	769	769
EPE	140	140	140	140	139	66	77	43	109	109	110	110	183	151	151	117	125	125	125	157	240
LADWP	510	510	545	611	641	971	1303	1278	1331	1327	1327	1327	1327	1327	1327	1327	1327	1327	1323	1313	1303
PNM	44	44	44	44	44	64	64	64	58	53	53	53	42	42	31	31	31	31	31	20	20
SCE	515	950	1083	1106	1106	1106	1086	1188	1195	1195	1195	1195	1195	1235	1235	935	935	935	969	800	904
SRP	112	104	101	105	345	514	642	712	644	644	644	657	657	657	657	657	657	657	657	657	657
TOTAL PEAKING	1632	2059	2026	2157	2620	3335	3821	3909	3961	3947	3948	3961	4023	4031	4020	3736	3744	3844	3874	3716	3893
(2) INTERMEDIATE																					
APS	254	254	452	452	452	452	452	468	693	693	693	693	693	693	693	693	693	693	693	693	693
EPE	119	111	136	136	206	196	143	301	141	56	213	158	158	276	390	420	578	492	525	504	271
LADWP	969	969	969	969	962	972	968	968	968	968	924	924	924	924	924	924	924	924	924	924	924
PNM	114	114	114	114	114	114	114	114	114	96	96	96	96	96	96	96	96	96	246	360	360
SCE	8266	8478	8478	8478	9228	9978	9978	9871	10417	10777	10994	11025	11050	11050	11050	11050	11050	11730	12040	12480	12480
SRP	498	498	498	504	504	504	504	796	790	790	790	794	1284	1284	1494	1494	1494	1494	1494	1494	1494
TOTAL INTERMEDIATE	10220	10424	10647	10653	11466	12216	12159	12518	13123	13380	13710	13690	14205	14323	14647	14677	14835	15429	15772	16341	16222
(3) BASE LOAD																					
APS	690	816	936	937	937	915	1038	1143	1248	1248	1483	1483	1725	2072	2428	2424	2780	2780	3136	3136	3614
EPE	236	285	366	366	411	478	496	496	690	725	577	617	636	606	637	637	645	731	898	898	1098
LADWP	2024	2407	2375	2197	2377	2816	3040	3189	3421	3421	3421	3451	3456	3456	3456	3456	3916	3843	3483	4099	4355
PNM	175	279	383	383	383	383	548	548	548	709	693	693	933	933	1529	1529	1659	1659	1789	1789	2025
SCE	408	408	1190	1616	2110	2042	2170	2271	2394	2399	2399	2399	2416	2550	2504	4314	4514	4255	4503	4807	5483
SRP	0	79	159	236	306	318	481	644	807	1015	1016	1017	1133	1249	1467	1464	1761	1755	2052	2052	2052
TOTAL BASE LOAD	3533	4274	5409	5735	6524	6952	7773	8291	9108	9517	9589	9660	10299	11041	13121	13824	15275	15023	15861	16781	18627
INSTALLED RESOURCE	15385	16757	18082	18545	20610	22503	23753	24718	26192	26844	27247	27311	28527	29395	31788	32237	33854	34296	35507	36838	38742
NON-FIRM PURCHASES OUTSIDE ANPP	135	130	124	123	331	153	348	369	179	179	179	179	179	179	178	178	178	56	56	180	56
NON-FIRM SALES OUTSIDE ANPP	3	3	3	2	2	2	2	0	0	0	0	0	0	100	0	0	0	0	0	0	170
CAPABILITY	15517	16884	18203	18666	20939	22654	24099	25087	26371	27023	27426	27490	28706	29474	31966	32415	34032	34352	35563	37018	38628

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Table 1.1-8  
CAPABILITY OF RESOURCES  
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Arizona Public Service Company				1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Year																								
1.1.2	Power Supply (MW) (a) Plant and Unit	Type	Fuel	Function																				
	Childs 1	Hydro		Base	*	*	*	*	*	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
	Childs 2	Hydro		Base	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
	Childs 3	Hydro		Base	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
	Irving 1	Hydro		Base	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	Total Hydro				5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	Four Corners 1	Steam	Coal	Base	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175
	Four Corners 2	Steam	Coal	Base	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177
	Four Corners 3	Steam	Coal	Base	213	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220
	Cholla 1	Steam	Coal	Base	120	120	120	120	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116
	Ocotillo 1	Steam	Oil	Inter.	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
	Ocotillo 2	Steam	Oil	Inter.	114	114	114	114	114	114	114	114	114	114	114	114	114	114	114	114	114	114	114	114
	Saguaro 1 (b)	Steam	Oil	Pk/Inter. (e)	99	99	99	99	99	99	115	115	115	115	115	115	115	115	115	115	115	115	115	115
	Saguaro 2	Steam	Oil	Pk/Inter. (e)	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99
	West Phoenix 4	Steam	Oil	Peak	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
	West Phoenix 5(c)	Steam	Oil	Peak	13	13	13	13	13	13	13	13	12	12	12	12	12	12	12	12	12	12	12	12
	West Phoenix 6(c)	Steam	Oil	Peak	67	67	67	67	67	67	67	67	63	63	63	63	63	63	63	63	63	63	63	63
	Yucca 1	Steam	Oil	Inter.	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
	Four Corners 4	Steam	Coal	Base		119	119	120	120	120	120	120	120	120	120	120	120	118	118	118	118	118	118	118
	Four Corners 5	Steam	Coal	Base			120	120	120	120	120	120	120	120	120	120	120	118	118	118	118	118	118	118
	Yuma GT 1	Comb. Turb.	Oil	Peak				19	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	Yuma GT 2	Comb. Turb.	Oil	Peak				19	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	Fairview GT 1	Comb. Turb.	Oil	Peak					18	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
	Ocotillo GT 1(d)	Comb. Turb.	Oil	Peak					57	64	57	56	56	56	56	56	56	56	56	56	56	56	56	56
	Saguaro GT 1(d)	Comb. Turb.	Oil	Peak					56	60	60	55	55	55	55	55	55	55	55	55	55	55	55	55
	West Phoenix GT 1(d)	Comb. Turb.	Oil	Peak					57	64	58	56	56	56	56	56	56	56	56	56	56	56	56	56
	Yuma GT 1(d)	Comb. Turb.	Oil	Peak					60	60	57	57	57	57	57	57	57	57	57	57	57	57	57	57
	Ocotillo GT 2(d)	Comb. Turb.	Oil	Peak					64	58	56	56	56	56	56	56	56	56	56	56	56	56	56	56
	Saguaro GT 2(d)	Comb. Turb.	Oil	Peak					60	60	54	54	54	54	54	54	54	54	54	54	54	54	54	54
	West Phoenix GT 2(d)	Comb. Turb.	Oil	Peak					64	58	56	56	56	56	56	56	56	56	56	56	56	56	56	56
	Yuma GT 4(d)	Comb. Turb.	Oil	Peak						60	56	56	56	56	56	56	56	56	56	56	56	56	56	56

(a) Capacity shown includes resources installed as of July 1 of that year.  
(b) Saguaro 1 upgraded 3/17/75.  
(c) West Phoenix 5 and 6 downgraded 10/21/76.  
(d) Gas Turbines downgraded 1975.  
(e) Saguaro 1 and 2 changed from Peaking to Intermediate in 1970.

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Table 1.1-8  
CAPABILITY OF RESOURCES  
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Arizona Public Service Company

Year				1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
1.1.2	Power Supply (MW) (a) Plant and Unit	Type	Fuel	Function																				
	Navajo 1	Steam	Coal	Base						105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
	Navajo 2	Steam	Coal	Base							105		105	105	105	105	105	105	105	105	105	105	105	105
	Navajo 3	Steam	Coal	Base								105	105	105	105	105	105	105	105	105	105	105	105	105
	West Phoenix CC 1	Comb. Cycle	Oil	Inter.								75	75	75	75	75	75	75	75	75	75	75	75	75
	West Phoenix CC 2	Comb. Cycle	Oil	Inter.								75	75	75	75	75	75	75	75	75	75	75	75	75
	West Phoenix CC 3	Comb. Cycle	Oil	Inter.								75	75	75	75	75	75	75	75	75	75	75	75	75
	Cholla 2	Steam	Coal	Base										235	235	235	235	235	235	235	235	235	235	235
	Cholla 3	Steam	Coal	Base												242	242	242	242	242	242	242	242	242
	Cholla 4	Steam	Coal	Base													347	347	347	347	347	347	347	347
	Palo Verde 1	Steam	Nuclear	Base														356	356	356	356	356	356	356
	Palo Verde 2	Steam	Nuclear	Base																356	356	356	356	356
	Palo Verde 3	Steam	Nuclear	Base																	356	356	356	356
	Peaking Unit 1	Comb. Turb.	Oil	Peak															50	50	50	50	50	50
	Peaking Unit 2	Comb. Turb.	Oil	Peak																	50	50	50	50
	Peaking Unit 3	Comb. Turb.	Oil	Peak																	50	50	50	50
	Palo Verde 4	Steam	Nuclear	Base																				478
	Palo Verde 5	Steam	Nuclear	Base																				
	Future Coal	Steam	Coal	Inter.																				
(1)	Peaking				311	311	113	151	345	614	649	624	619	619	619	619	619	619	669	669	769	769	769	769
(2)	Intermediate				254	254	452	452	452	452	468	693	693	693	693	693	693	693	693	693	693	693	693	693
(3)	Base Load				690	816	936	937	937	915	1038	1143	1248	1483	1483	1725	2072	2428	2424	2780	2780	3136	3136	3614
	Installed Res.				1255	1381	1501	1540	1734	1981	2139	2235	2565	2560	2795	3037	3384	3740	3786	4142	4242	4598	4598	5076

(a) Capacity shown includes resources installed as of July 1 of that year.  
(b) Saguaro 1 upgraded 3/17/77.  
(c) West Phoenix 5 and 6 downgraded 10/21/76.  
(d) Gas turbines downgraded 1975.

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Table 1.1-8  
CAPABILITY OF RESOURCES  
1968 THROUGH 1988 (Sheet 4 of 13)  
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Arizona Public Service Company

Year				1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	
1.1.2	Power Supply (MW) <sup>(a)</sup>	Type	Fuel	Function																					
	Plant and Unit																								
	Nonfirm Purchases																								
	Outside ANPP																								
	PG&E Peaking				Unknown		Peak	50																	
	Dave Johnston 4				Steam	Coal	Base	125																	
	(UP&L)																								
	Huntington																								
	Canyon 1				Steam	Coal	Base				100	100													
	(UP&L)																								
	Navajo																								
	Layoff -				Steam	Coal	Base							16	16	16	16	16	16	15	15	15			
	Navajo 1,																								
	2,3																								
	Unknown Pur-				Unknown		Base																	124	
	chase																								
SRP contingent	Steam	Oil	Pk/Inter. <sup>(f)</sup>	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	
San Juan 2	Steam	Coal	Base							27															
(TG&E)																									
Within PVNGS																									
Total				62	62	62	62	237	62	189	162	78	78	78	78	78	78	77	77	77	62	62	186	62	
Nonfirm Sales																									
Outside PVNGS																									
APA (Saguaro	Steam	Oil	Inter.	(3)	(3)	(3)	(2)	(2)	(2)	(2)							(100)						(170)		
1,2)																									
Layoff																									
Within PVNGS <sup>(e)</sup>																									
Capability				1314	1440	1560	1600	1969	2041	2326	2397	2643	2638	2873	2873	3115	3362	3817	3863	4219	4304	4660	4784	4968	

(a) Capacity shown includes resources installed as of July 1 of that year.  
(b) Saguaro 1 upgraded 3/17/75.  
(c) West Phoenix 5 and 6 downgraded 10/21/76.  
(d) Gas Turbines downgraded 1975.  
(e) Saguaro 1 and 2 changed from Peaking to Intermediate in 1970.  
(f) SRP contingent changed from Peaking to Intermediate in 1971.

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LOS ANGELES DEPARTMENT OF WATER AND POWER

Year				1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
1.1.2	Power Supply (MW) (a) Plant and Unit	Type	Fuel	Function																				
	PNW	Hydro	Water	Base	17	400	324	0	260	525	525	525	525	525	350	350	350	350	350	350	350	350	350	350
	Castaic	Pumped Strge	Water	Peaking	0	0	0	0	24	228	560	535	630	630	630	630	630	630	630	630	630	630	630	630
	Hoover	Hydro	Water	Peaking	400	400	435	501	507	553	553	553	511	511	511	511	511	511	511	511	511	507	497	487
	Owens Gorge	Hydro	Water	Peaking	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110
	Owens Valley	Hydro	Water	Base	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	Aqueduct	Hydro	Water	Base	50	50	63	57	66	73	74	74	74	74	74	74	74	74	74	74	74	74	74	74
	Harbor 1	Steam	Gas/Oil	Intermediate	78	78	78	78	78	78	78	78	78	72	72	72	72	72	72	72	72	72	72	72
	Harbor 2	Steam	Gas/Oil	Intermediate	79	79	79	79	79	79	79	79	79	67	67	67	67	67	67	67	67	67	67	67
	Harbor 3	Steam	Gas/Oil	Intermediate	96	96	96	96	96	96	92	92	92	86	86	86	86	86	86	86	86	86	86	86
	Harbor 4	Steam	Gas/Oil	Intermediate	96	96	96	96	96	96	92	92	92	86	86	86	86	86	86	86	86	86	86	86
	Harbor 5	Steam	Gas/Oil	Intermediate	96	96	96	96	96	94	94	94	94	87	87	87	87	87	87	87	87	87	87	87
	Valley 1	Steam	Gas/Oil	Intermediate	99	99	99	99	95	95	101	101	101	94	94	94	94	94	94	94	94	94	94	94
	Valley 2	Steam	Gas/Oil	Intermediate	99	99	99	99	99	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
	Valley 3	Steam	Gas/Oil	Intermediate	163	163	163	163	163	171	171	171	171	171	171	171	171	171	171	171	171	171	171	171
	Valley 4	Steam	Gas/Oil	Intermediate	163	163	163	163	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160
	Scattergood 1	Steam	Gas/Oil	Base	175	175	175	175	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179
	Scattergood 2	Steam	Gas/Oil	Base	179	179	179	179	0	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179
	Scattergood 3	Steam	Gas/Oil	Base	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	460	460	460	460	460
	Haynes 1	Steam	Gas/Oil	Base	232	232	233	233	232	193	232	222	222	222	222	222	222	222	222	222	222	222	222	222
	Haynes 2	Steam	Gas/Oil	Base	232	232	236	236	219	219	232	232	232	232	232	232	232	232	232	232	232	232	232	232
	Haynes 3	Steam	Gas/Oil	Base	222	222	232	232	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220
	Haynes 4	Steam	Gas/Oil	Base	222	222	236	236	232	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227
	Haynes 5	Steam	Gas/Oil	Base	343	343	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344
	Haynes 6	Steam	Gas/Oil	Base	343	343	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344
	Mohave 1	Steam	Coal	Base	0	0	0	152	152	152	158	158	158	158	158	158	158	158	158	158	158	158	158	158
	Mohave 2	Steam	Coal	Base	0	0	0	0	120	152	158	158	158	158	158	158	158	158	158	158	158	158	158	158
	Navajo 1	Steam	Coal	Base	0	0	0	0	0	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159
	Navajo 2	Steam	Coal	Base	0	0	0	0	0	0	159	159	159	159	159	159	159	159	159	159	159	159	159	159
	Navajo 3	Steam	Coal	Base	0	0	0	0	0	0	0	159	159	159	159	159	159	159	159	159	159	159	159	159
	Navajo Layoff	Steam	Coal	Base	0	0	0	0	0	0	0	73	73	73	73	73	73	73	73	73	0	0	0	0
	Turbines	Comb. Turb.	Distillate	Peaking	0	0	0	0	0	80	80	80	80	76	76	76	76	76	76	76	76	76	76	76
	Coronado	Steam	Coal	Base	0	0	0	0	0	0	0	0	0	0	205	210	210	140	140	70	70	0	0	0

(a) Power supply is based on net capacity.

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Table 1.1-8  
CAPABILITY OF RESOURCES  
1968 THROUGH 1988 (Sheet 6 of 13)  
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LOS ANGELES DEPARTMENT OF WATER AND POWER

Year				1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988			
1.1.2	Power Supply (MW) <sup>(a)</sup>	Type	Fuel	Function																							
	Plant and Unit																										
	IPP 1 <sup>(b)</sup>				Steam	Coal	Base	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	256	256
	IPP 2 <sup>(b)</sup>				Steam	Coal	Base	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	256
	IPP 3 <sup>(b)</sup>				Steam	Coal	Base	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	IPP 4 <sup>(b)</sup>				Steam	Coal	Base	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Palo Verde 1				Steam	Nuclear	Base	0	0	0	0	0	0	0	0	0	0	0	0	0	70	70	70	70	70	70	70
	Palo Verde 2				Steam	Nuclear	Base	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70	70	70	70	70
	Palo Verde 3				Steam	Nuclear	Base	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70	70	70
	Peaking							510	510	545	611	641	971	1303	1278	1331	1327	1327	1327	1327	1327	1327	1327	1327	1323	1313	1303
	Intermediate							969	969	969	969	962	972	968	968	968	968	924	924	924	924	924	924	924	924	924	924
	Base Load							2024	2407	2375	2197	2377	2816	3040	3189	3421	3421	3421	3451	3456	3456	3456	3456	3916	3843	4099	4355
Installed Resources				3503	3886	3889	3777	3980	4759	5311	5435	5720	5716	5672	5702	5707	5707	5707	5707	6166	6094	6090	6336	6582			

(a) Power Supply is based on net capacity.  
(b) Based on the date of expected firm power availability, which is approximately one year later than the scheduled commercial operation date.

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Year				1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
1.1.2	Power Supply (MW) Plant and Unit	Type	Fuel	Function																				
	Rio Grande #1 (c)	Steam	Fossil	Peaking	20	20	20	20	20	13	13	13	13	13	13	13	13	13	13					
	Rio Grande #2 (c)	Steam	Fossil	Peaking	24	24	24	24	24	13	13	13	13	13	13	13	13	13	13					
	Rio Grande #3 (c)	Steam	Fossil	Peaking	22	22	22	22	22	17	17	17	17	18	18	18	18	18	18	18	18	18	18	18
	Rio Grande #4 (c)	Steam	Fossil	Peaking	37	37	37	37	36	37 (f)	34 (d)	34 (d)	34 (d)	34 (d)	34 (d)	34 (d)	34 (d)	34 (e)	34 (e)	34 (e)	34 (d)	34 (e)	34 (d)	34 (d)
	Rio Grande #5 (c)	Steam	Fossil	Peaking	37	37	37	36	36	32 (e)	32 (e)	32 (e)	32 (d)	32 (d)	32 (d)	32 (d)	32 (e)	32 (e)	32 (e)	32 (e)	32 (e)	32 (e)	32 (d)	32 (d)
	Rio Grande #6 (a) (c)	Steam	Fossil	B/I/P	32	24	49	49	28	20	42	42	47	47	47	47	47	47	47	47	47	47	47	
	Rio Grande #7 (a) (c)	Steam	Fossil	B/I/P	31	24	49	49	28	20	42	42	32	32	28	33	47	33	33	33	33	36	36	
	Rio Grande #8 (c)	Steam	Fossil	Base				160	160	138	138	138	93	102	91	105	147	106	106	106	106	114	114	
	Newman #1 (c)	Steam	Fossil	Base	87	87	87	87	86	82	82	82	82	82	82	82	82	82	82	82	82	82	82	
	Newman #2 (c)	Steam	Fossil	Base	93	93	93	93	92	86	86	86	86	86	86	86	86	86	86	86	86	86	86	
	Newman #3 (b) (c)	Steam	Fossil	Base	112	112	112	112	111	106	106	106	106	106	106	106	106	106	106	106	106	106	106	
	Newman #4 (b)	Combined Cycle	Fossil	Base						124	224	224	224	224	224	224	224	224	224	224	224	224	224	
	Four Corners #4	Steam	Fossil	Base		56	56	56	56	56	56	56	56	56	56	56	56	56	54	54	54	54	54	
	Four Corners #5	Steam	Fossil	Base			56	56	56	55	55	55	55	55	55	55	55	55	53	53	53	53	53	
	Copper	Combustion Turbine	Fossil	Peaking												73	73	73	73	73	73	73	73	
	Future #1	Steam	Coal	Base																				
	Future #2	Steam	Coal	Base																				
	PVNGS #1	Steam	Nuclear	Base														200	200	200	200	200	200	
	PVNGS #2	Steam	Nuclear	Base															200	200	200	200	200	
	PVNGS #3	Steam	Nuclear	Base																	200	200	200	
	PVNGS #4	Steam	Nuclear	Base																			50	
	PVNGS #5	Steam	Nuclear	Base																				
	Total Installed Resources				495	536	642	642	756	740	716	840	940	890	900	885	977	1033	1178	1174	1348	1348	1548	1609
	Total Peaking (d)				140	140	140	140	139	66	77	43	109	109	110	110	183	151	151	117	125	125	157	240
	Total Intermediate (e)				119	111	136	136	206	196	143	301	141	56	213	158	276	390	420	578	492	525	504	271
	Total Base Load (f)				236	285	366	366	411	478	496	690	725	577	617	636	606	637	637	645	731	898	898	1098
	Purchase Within ANPP																							
	Sale Within ANPP																							
	Capability (IR + P - S)				495	536	642	642	756	740	716	840	940	890	900	885	977	1033	1178	1174	1348	1348	1548	1609

NEED FOR POWER

Table 1.1-8  
CAPABILITY OF RESOURCES  
1968 THROUGH 1988 (Sheet 7 of 13)  
EL PASO ELECTRIC COMPANY

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(a) Adjusted for contingent power to PNM.  
(b) NEA limitation on natural gas derates unit on oil  
(c) Rio Grande Units 1-8 and Newman Units 1-3 summer peak ratings were adjusted to reflect age of units and increased oil fired operation.  
(d) Operated as peaking unit.  
(e) Operated as intermediate unit.  
(f) Operated as base load unit.

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Year				1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
1.1.2	Power Supply (MW) Plant and Unit	Type	Fuel	Function																				
	Prager 6	Steam	Fossil	Peaking	6	6	6	6	6	6	6	0												
	Prager 7	Steam	Fossil	Peaking	7	7	7	7	7	7	7	7	6	6	6	0								
	Prager 8	Steam	Fossil	Peaking	7	7	7	7	7	7	7	7	5	5	5	0								
	Prager 9	Steam	Fossil	Peaking	12	12	12	12	12	12	12	12	11	11	11	11	11	0						
	Santa Fe 1	Steam	Fossil	Peaking	6	6	6	6	6	6	6	6	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	0	0
	Santa Fe 2	Steam	Fossil	Peaking	6	6	6	6	6	6	6	6	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	0	0
	Person 1	Steam	Fossil	Intermediate	22	22	22	22	22	22	22	22	18	18	18	18	18	18	18	18	18	18	18	0
	Person 2	Steam	Fossil	Intermediate	22	22	22	22	22	22	22	22	18	18	18	18	18	18	18	18	18	18	18	0
	Person 3	Steam	Fossil	Intermediate	35	35	35	35	35	35	35	35	28	28	28	28	28	28	28	28	28	28	28	28
	Person 4	Steam	Fossil	Intermediate	35	35	35	35	35	35	35	35	32	32	32	32	32	32	32	32	32	32	32	32
	Reeves 1	Steam	Fossil	Base Load	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	Reeves 2	Steam	Fossil	Base Load	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	Reeves 3	Steam	Fossil	Base Load	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
	Four Corners 4	Steam	Fossil	Base Load		104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104
	Four Corners 5	Steam	Fossil	Base Load			104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104
	Las Vegas GT	Comb. Turb.	Fossil	Peaking					20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
	San Juan 1	Steam	Fossil	Base Load						165	165	165	165	157	157	157	157	157	157	157	157	157	157	157
	San Juan 2	Steam	Fossil	Base Load									161	153	153	153	153	153	153	153	153	153	153	153
	San Juan 3	Steam	Fossil	Base Load												240	240	234	234	234	234	234	234	234
	San Juan 4	Steam	Fossil	Base Load														472	472	472	472	472	472	472
	PV 1	Steam	Nuclear	Base Load														130	130	130	130	130	130	130
	PV 2	Steam	Nuclear	Base Load																130	130	130	130	130
	PV 3	Steam	Nuclear	Base Load																	130	130	130	130
	Pumped Storage 1-2	Pumped Storage	PS	Intermediate																		150	150	150
	Pumped Storage 3-4	Pumped Storage	PS	Intermediate																				150
	New Mexico Station	Steam	Fossil	Base Load																				236

Table 1.1-8  
CAPABILITY OF RESOURCES  
1968 THROUGH 1988 (Sheet 8 of 13)  
PUBLIC SERVICE COMPANY  
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SALT RIVER PROJECT

	Year			1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
1.1.2 Power Supply (MW) Plant and Unit	Type	Fuel	Function																					
Roosevelt	Hydro		Peaking	19	19	21	--	--	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
Mormon Flat #1	Hydro		Peaking	7	7	10	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Mormon Flat #2	Pumped Storage		Peaking				49	50	50	50	50	44	44	44	44	44	44	44	44	44	44	44	44	44
Horse Mesa #1, 2, 3	Hydro		Peaking	30	30	26	--	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
Horse Mesa #4	Pumped Storage		Peaking					94	97	97	97	96	96	96	93	93	93	93	93	93	93	93	93	93
Stewart Mt.	Hydro		Peaking	10	10	10	10	11	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Cross Cut	Hydro		Peaking	4	4	--	3	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3
Agua Fria #1	Steam	Oil/Gas	Intermediate	106	106	106	109	109	109	109	109	109	109	109	111	111	111	111	111	111	111	111	111	111
Agua Fria #2	Steam	Oil/Gas	Intermediate	106	106	106	109	109	109	109	109	109	109	109	111	111	111	111	111	111	111	111	111	111
Agua Fria #3	Steam	Oil/Gas	Intermediate	182	182	182	182	182	182	182	182	180	180	180	180	180	180	180	180	180	180	180	180	180
Kyrene #1	Steam	Oil/Gas	Intermediate	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
Kyrene #2	Steam	Oil/Gas	Intermediate	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Crosscut #1, 2, 3, 4	Steam	Oil/Gas	Peaking	34	34	34	34	34	34	34	34	32	32	32	32	32	32	32	32	32	32	32	32	32
Crosscut (a)	Internal Comb. Diesel	Oil	Peaking	8																				
Four Corners #4	Steam	Coal	Base		79	80	80	80	80	80	80	80	80	80	80	80	80	80	79	79	79	79	79	79
Four Corners #5	Steam	Coal	Base			79	80	80	80	80	80	80	80	80	80	80	80	80	78	78	78	78	78	78
Mohave #1	Steam	Coal	Base				76	76	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
Mohave #2	Steam	Coal	Base					70	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
Kyrene #3	Comb. Turb.	Oil/Gas	Peaking					56	63	63	63	48	48	48	51	51	51	51	51	51	51	51	51	51

(a) Retired 8/15/68

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CAPABILITY OF RESOURCES  
1968 THROUGH 1988 (Sheet 9 of 13)  
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Year				1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
1.1.2 Power Supply (MW) Plant and Unit	Type	Fuel	Function																					
Kyrene #4	Comb. Turb.	Oil/Gas	Peaking					56	61	61	61	48	48	48	51	51	51	51	51	51	51	51	51	51
Kyrene #5	Comb. Turb.	Oil/Gas	Peaking						58	58	58	42	42	42	47	47	47	47	47	47	47	47	47	47
Kyrene #6	Comb. Turb.	Oil/Gas	Peaking						57	57	57	42	42	42	47	47	47	47	47	47	47	47	47	47
Navajo #1	Steam	Coal	Base							163	163	163	163	163	163	163	163	163	163	163	163	163	163	163
Agua Fria #5	Comb. Turb.	Oil	Peaking							64	64	66	66	66	64	64	64	64	64	64	64	64	64	64
Agua Fria #6	Comb. Turb.	Oil	Peaking							64	64	66	66	66	64	64	64	64	64	64	64	64	64	64
Santan #1	Com. Cycle	Oil	Intermediate								73	72	72	72	72	72	72	72	72	72	72	72	72	72
Santan #2	Com. Cycle	Oil	Intermediate								73	72	72	72	72	72	72	72	72	72	72	72	72	72
Santan #3	Com. Cycle	Oil	Intermediate								73	72	72	72	72	72	72	72	72	72	72	72	72	72
Santan #4	Com. Cycle	Oil	Intermediate								73	72	72	72	72	72	72	72	72	72	72	72	72	72
Agua Fria #4	Com. Turb.	Oil	Peaking								70	66	66	66	69	69	69	69	69	69	69	69	69	69
Navajo #2	Steam	Coal	Base								163	163	163	163	163	163	163	163	163	163	163	163	163	163
Hayden #2	Steam	Coal	Base										208	209	210	210	210	131	131	131	125	125	125	125
Navajo #3	Steam	Coal	Base									163	163	163	163	163	163	163	163	163	163	163	163	163
Craig #1	Steam	Coal	Base													116	116	116	116	116	116	116	116	116
Coronado #1	Steam	Coal	Intermediate													245	245	350	350	350	350	350	350	350
Craig #2	Steam	Coal	Base														116	116	116	116	116	116	116	116
Coronado #2	Steam	Coal	Intermediate													245	245	350	350	350	350	350	350	350
Palo Verde #1	Steam	Nuclear	Base															297	297	297	297	297	297	297
Palo Verde #2	Steam	Nuclear	Base																	297	297	297	297	297

Table 1.1-8  
CAPABILITY OF RESOURCES  
1968 THROUGH 1988 (Sheet 10 of 13)  
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SALT RIVER PROJECT

Year				1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
1.1.2 Power Supply (MW) Plant and Unit	Type	Fuel	Function																					
Palo Verde #3	Steam	Nuclear	Base																			297	297	297
Total Peaking				112	104	101	105	345	514	642	712	644	644	644	657	657	657	657	657	657	657	657	657	657
Total Intermediate				498	498	498	504	504	504	504	796	790	790	790	794	1,284	1,284	1,494	1,494	1,494	1,494	1,494	1,494	1,494
Total Base				0	79	159	236	306	318	481	644	807	1,015	1,016	1,017	1,133	1,249	1,467	1,464	1,761	1,755	2,052	2,052	2,052
Installed Resources				610	681	758	845	1,155	1,336	1,627	2,152	2,241	2,449	2,450	2,468	3,074	3,190	3,618	3,615	3,912	3,906	4,203	4,203	4,203
Nonfirm Purchases - Outside ANPP																								
Arizona Power Authority				50	50	50	56	55	54	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
Colorado-Ute Elec.				85	80	74	67	71	69	50	50	0	0	0	0	0	0	0	0	0	0	0	0	0
Plains Electric G&T				0	0	0	0	30	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
USBR-Navajo Layoff				0	0	0	0	0	0	85	163	107	107	107	107	107	107	107	107	107	0	0	0	0
Nonfirm Purchases - Within ANPP																								
Southern California Edison				0	0	0	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Nonfirm Purchases				135	130	124	203	156	153	221	269	163	163	163	163	163	163	163	163	163	56	56	56	56
Nonfirm Sales - Outside ANPP																								
Nonfirm Sales - Within ANPP																								
Arizona Public Service				(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)
Los Angeles Dept. of Water & Power				0	0	0	0	0	0	0	0	0	0	0	0	0	0	(140)	(140)	(70)	(70)	0	0	0
Total Nonfirm Sales				(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(62)	(202)	(202)	(132)	(132)	(62)	(62)	(62)
Capability (IR+NFP-NFS)				683	749	820	986	1,249	1,427	1,786	2,359	2,342	2,550	2,551	2,569	3,175	3,291	3,579	3,576	3,943	3,830	4,197	4,197	4,197

PVNGS ER-OL  
NEED FOR POWER

Table 1.1-8  
CAPABILITY OF RESOURCES  
1968 THROUGH 1988 (Sheet 11 of 13)  
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Table 1.1-8  
CAPABILITY OF RESOURCES  
1968 THROUGH 1988 (Sheet 13 of 13)  
SOUTHERN CALIFORNIA EDISON

Southern California Edison Company

Year				1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
1.1.2	Power Supply (MW) Plant and Unit	Type	Fuel	Function																				
	Mandalay 3	Comb. Turb.	Oil	Peaking	0	0	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121
	Four Corners 4	Steam	Coal	Base	0	0	373	373	373	373	373	373	373	373	373	373	373	366	366	366	366	366	366	366
	Four Corners 5	Steam	Coal	Base	0	0	373	373	373	373	373	373	373	373	373	373	373	366	366	366	366	366	366	366
	Mohave 1	Steam	Coal	Base	0	0	0	426	426	442	442	442	442	442	442	442	442	442	442	442	442	442	442	442
	Mohave 2	Steam	Coal	Base	0	0	0	494	426	443	443	443	443	443	443	443	443	443	443	443	443	443	443	443
	Ormond Beach 1	Steam	Oil	Intermediate	0	0	0	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
	Ormond Beach 2	Steam	Oil	Intermediate	0	0	0	0	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
	Navajo Layoff	Steam	Coal	Base	0	0	0	0	0	95	196	319	319	319	319	312	266	263	263	263	0	0	0	0
	Ellwood	Comb. Turb.	Coal	Peaking	0	0	0	0	0	0	54	54	54	54	54	54	54	54	54	54	54	54	54	54
	Long Beach 1-9	Comb. Cycle	Coal	Intermediate	0	0	0	0	0	0	0	0	490	490	543	543	543	543	543	543	543	543	543	543
	Cool Water 3,4	Comb. Cycle	Coal	Intermediate	0	0	0	0	0	0	0	0	0	0	360	468	468	468	468	468	468	468	468	468
	Co-Generation	Co-Generation	-	Base	0	0	0	0	0	0	0	0	0	0	0	24	28	32	37	41	45	49	53	57
	San Onofre 2	Nuclear	Nuclear	Base	0	0	0	0	0	0	0	0	0	0	0	0	176	880	880	880	880	880	880	880
	San Onofre 3	Nuclear	Nuclear	Base	0	0	0	0	0	0	0	0	0	0	0	0	0	176	880	880	880	880	880	880
	Axis Steam	Steam	Oil	Intermediate	0	0	0	0	0	0	0	0	0	0	0	0	25	25	25	25	25	25	25	25
	Axis CT	Comb. Turb.	Oil	Peaking	0	0	0	0	0	0	0	0	0	0	0	0	22	22	22	22	22	22	22	22
	Palo Verde 1	Nuclear	Nuclear	Base	0	0	0	0	0	0	0	0	0	0	0	0	0	187	187	187	187	187	187	187
	Palo Verde 2	Nuclear	Nuclear	Base	0	0	0	0	0	0	0	0	0	0	0	0	0	0	187	187	187	187	187	187
	Palo Verde 3	Nuclear	Nuclear	Base	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	188	188	188	188
	Wind 1-4	Wind	-	Base	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3	8	18
	Fuel Cells 1-19	Fuel Cell	Oil	Peaking	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	26	26	78	130	234
	Geothermal 1-4	Geothermal	-	Base	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9	63	108	108	108
	Combined Cycle	Comb. Cycle	Oil	Intermediate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	540	850	1290	1290
	California Coal 1	Steam	Coal	Base	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	250	250
	California Coal 2	Steam	Coal	Base	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	250	250
	Combustion Turbines	Comb. Turb.	Oil	Peaking	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	110	110	110
	Palo Verde 4	Nuclear	Nuclear	Base	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	412
	Peaking				515	950	1083	1106	1106	1086	1188	1195	1195	1195	1195	1195	1235	1235	935	935	935	969	800	904
	Intermediate				8266	8478	8478	8478	9228	9978	9978	9871	9871	10417	10777	10994	11025	11050	11050	11050	11050	12480	12480	12480
	Base Load				408	408	1190	1616	2110	2042	2170	2271	2394	2399	2399	2399	2416	2550	3604	4314	4514	4255	4503	5483
	Adverse Year Hydro Derate				(101)	(112)	(112)	(92)	(100)	(100)	(100)	(203)	(213)	(213)	(213)	(213)	(213)	(213)	(193)	(193)	(193)	(139)	(139)	(139)
	Installed Resources				9088	9724	10639	11108	12344	13026	13134	13127	13247	13798	14158	14375	14423	14622	15676	16106	16306	16727	17319	17948

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ARIZONA - NEW MEXICO POWER AREA

Org.	Thermal - Plant Name, Unit No., Location	Unit Type	New Capability (MW)		Primary Fuel		Alternate Fuel		Thermal Unit Commercial Operation	Comments
	Hydro - Plant Name (No. of Units) Location		Summer	Winter	Fuel Type	Delivery Methods	Fuel Type	Delivery Methods		
AEPC	Apache CC 1, Cochise, AZ	CA	75	75	F02	TK	NG	PL	1965	
AEPC	Apache CC 1, Cochise, AZ	CT	10	10	F02	TK	NG	PL	1965	
AEPC	Apache GT 2, Cochise, AZ	GT	20	20	F02	TK	NG	PL	1972	
AEPC	Apache GT 3, Cochise, AZ	GT	63	63	F02	TK	NG	PL	1974	
APS	Childs (3), Camp Verde, AZ	HY	4	4	WAT					Formerly called Fairview.
APS	Irving (2), Camp Verde, AZ	HY	1	1	WAT					
APS	Cholla 1, Joseph City, AZ	ST	116	116	SUB	RR,TK	None		1962	
APS	Cholla 2, Joseph City, AZ	ST	235	235	SUB	RR,TK	None		1978	
APS	Douglas GT 1, Douglas, AZ	GT	21	21	F02	TK	None		1972	
APS	Four Corners 1, Farmington, NM	ST	175	175	SUB	RR,TK	None		1963	
APS	Four Corners 2, Farmington, NM	ST	177	177	SUB	RR,TK	None		1963	
APS	Four Corners 3, Farmington, NM	ST	220	220	SUB	RR,TK	None		1964	
APS	Four Corners 5, Farmington, NM	ST	800	800	SUB	RR,TK	None		1970	
										APS 15%, PNM 13%, SRP 10%, EPE 7%, TGE 7%, SCE 48%.
APS	Phoenix CC 1, Phoenix, AZ	CS	24	24	WH				1976	
APS	Phoenix CC 1, Phoenix, AZ	CT	51	51	F02	RR,TK	Top	RR,TK	1976	
APS	Phoenix CC 2, Phoenix, AZ	CW	24	24	WH				1976	
APS	Phoenix CC 2, Phoenix, AZ	CT	51	51	F02	RR,TK	Top	RR,TK	1976	
APS	Phoenix CC 3, Phoenix, AZ	CY	24	24	WH				1976	
APS	Phoenix CC 3, Phoenix, AZ	CT	51	51	F02	RR,TK	Top	RR,TK	1976	
APS	Phoenix 4, Phoenix, AZ	ST	33	33	F06	RR,TK	NG	PL	1948	
APS	Phoenix 5, Phoenix, AZ	ST	12	12	F06	RR,TK	NG	PL	1949	
APS	Phoenix 6, Phoenix, AZ	ST	63	63	F06	RR,TK	NG	PL	1950	
APS	Phoenix GT 1, Phoenix, AZ	GT	56	56	F02	RR,TK	NG	PL	1972	
APS	Phoenix GT 2, Phoenix, AZ	GT	56	56	F02	RR,TK	NG	PL	1973	
APS	Ocotillo 1, Tempe, AZ	ST	115	115	F06	RR,TK	NG	PL	1960	
APS	Ocotillo 2, Tempe, AZ	ST	115	115	F06	RR,TK	NG	PL	1960	
APS	Ocotillo GT 1, Tempe, AZ	GT	56	56	F02	RR,TK	NG	PL	1972	
APS	Ocotillo GT 2, Tempe, AZ	GT	56	56	F02	RR,TK	NG	PL	1973	
APS	Saguaro 1, Red Rock, AZ	ST	115	115	F06	RR,TK	NG	PL	1954	
APS	Saguaro 2, Red Rock, AZ	ST	99	99	F06	RR,TK	NG	PL	1955	
APS	Saguaro GT 1, Red Rock, AZ	GT	55	55	F02	RR,TK	NG	PL	1972	
APS	Saguaro GT 2, Red Rock, AZ	GT	55	55	F02	RR,TK	NG	PL	1973	
APS	Tapco 1, Clarkdale, AZ	ST	0	0	F06	TK	None		1917	
										7 MW capability Not available Ownership: APS 33.3%, SCE 33.3%; IID 33.3%
APS	Yuma 1, Yuma, AZ	ST	75	75	F06	RR,TK	NG	PL	1959	
APS	Yuma GT 1, Yuma, AZ	GT	22	22	F02	RR,TK	NG	PL	1971	
APS	Yuma GT 2, Yuma, AZ	GT	22	22	F02	RR,TK	NG	PL	1971	
APS	Yuma GT 3, Yuma, AZ	GT	57	57	F02	RR,TK	NG	PL	1973	

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Org.	Thermal - Plant Name, Unit No., Location	Unit Type	New Capability (MW)		Primary Fuel		Alternate Fuel		Thermal Unit Commercial Operation	Comments
	Hydro - Plant Name (No. of Units) Location		Summer	Winter	Fuel Type	Delivery Methods	Fuel Type	Delivery Methods		
AEPC	Apache CC 1, Cochise, AZ	CA	75	75	F02	TK	NG	PL	1965	
AEPC	Apache CC 1, Cochise, AZ	CT	10	10	F02	TK	NG	PL	1965	
AEPC	Apache GT 2, Cochise, AZ	GT	20	20	F02	TK	NG	PL	1972	
AEPC	Apache GT 3, Cochise, AZ	GT	63	63	F02	TK	NG	PL	1974	
APS	Childs (3), Camp Verde, AZ	HY	4	4	WAT					Formerly called Fairview.
APS	Irving (2), Camp Verde, AZ	HY	1	1	WAT					
APS	Cholla 1, Joseph City, AZ	ST	116	116	SUB	RR,TK	None		1962	
APS	Cholla 2, Joseph City, AZ	ST	235	235	SUB	RR,TK	None		1978	
APS	Douglas GT 1, Douglas, AZ	GT	21	21	F02	TK	None		1972	
APS	Four Corners 1, Farmington, NM	ST	175	175	SUB	RR,TK	None		1963	
APS	Four Corners 2, Farmington, NM	ST	177	177	SUB	RR,TK	None		1963	
APS	Four Corners 3, Farmington, NM	ST	220	220	SUB	RR,TK	None		1964	
APS	Four Corners 5, Farmington, NM	ST	800	800	SUB	RR,TK	None		1970	
APS	Phoenix CC 1, Phoenix, AZ	CS	24	24	WH				1976	APS 15%, PNM 13%, SRP 10%, EPE 7%, TGE 7%, SCE 48%.
APS	Phoenix CC 1, Phoenix, AZ	CT	51	51	F02	RR,TK	Top	RR,TK	1976	
APS	Phoenix CC 2, Phoenix, AZ	CW	24	24	WH				1976	
APS	Phoenix CC 2, Phoenix, AZ	CT	51	51	F02	RR,TK	Top	RR,TK	1976	
APS	Phoenix CC 3, Phoenix, AZ	CY	24	24	WH				1976	
APS	Phoenix CC 3, Phoenix, AZ	CT	51	51	F02	RR,TK	Top	RR,TK	1976	
APS	Phoenix 4, Phoenix, AZ	ST	33	33	F06	RR,TK	NG	PL	1948	
APS	Phoenix 5, Phoenix, AZ	ST	12	12	F06	RR,TK	NG	PL	1949	
APS	Phoenix 6, Phoenix, AZ	ST	63	63	F06	RR,TK	NG	PL	1950	
APS	Phoenix GT 1, Phoenix, AZ	GT	56	56	F02	RR,TK	NG	PL	1972	
APS	Phoenix GT 2, Phoenix, AZ	GT	56	56	F02	RR,TK	NG	PL	1973	
APS	Ocotillo 1, Tempe, AZ	ST	115	115	F06	RR,TK	NG	PL	1960	
APS	Ocotillo 2, Tempe, AZ	ST	115	115	F06	RR,TK	NG	PL	1960	
APS	Ocotillo GT 1, Tempe, AZ	GT	56	56	F02	RR,TK	NG	PL	1972	
APS	Ocotillo GT 2, Tempe, AZ	GT	56	56	F02	RR,TK	NG	PL	1973	
APS	Saguaro 1, Red Rock, AZ	ST	115	115	F06	RR,TK	NG	PL	1954	
APS	Saguaro 2, Red Rock, AZ	ST	99	99	F06	RR,TK	NG	PL	1955	
APS	Saguaro GT 1, Red Rock, AZ	GT	55	55	F02	RR,TK	NG	PL	1972	
APS	Saguaro GT 2, Red Rock, AZ	GT	55	55	F02	RR,TK	NG	PL	1973	
APS	Tapco 1, Clarkdale, AZ	ST	0	0	F06	TK	None		1917	
APS	Yuma 1, Yuma, AZ	ST	75	75	F06	RR,TK	NG	PL	1959	7 MW capability Not available Ownership: APS 33.3%, SCE 33.3%; IID 33.3%
APS	Yuma GT 1, Yuma, AZ	GT	22	22	F02	RR,TK	NG	PL	1971	
APS	Yuma GT 2, Yuma, AZ	GT	22	22	F02	RR,TK	NG	PL	1971	
APS	Yuma GT 3, Yuma, AZ	GT	57	57	F02	RR,TK	NG	PL	1973	

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ARIZONA - NEW MEXICO POWER AREA

Org.	Thermal - Plant Name, Unit No., Location	Unit Type	New Capability (MW)		Primary Fuel		Alternate Fuel		Thermal Unit Commercial Operation	Comments
	Hydro - Plant Name (No. of Units) Location		Summer	Winter	Fuel Type	Delivery Methods	Fuel Type	Delivery Methods		
APS	Yuma GT 4, Yuma, AZ	GT	56	56	F02	RR,TK	Top	RR,TK	1974	
CUC	Citizens 1-4, Nogales, AZ	IC	3	3	F02	TK	NG	PL	1959	
EPE	Newman 1, El Paso, TX	ST	82	82	NG	PL	F04	TK	1960	
EPE	Newman 2, El Paso, TX	ST	86	86	NG	PL	F04	TK	1963	
EPE	Newman 3, El Paso, TX	ST	106	106	NG	PL	F04	TK	1969	
EPE	Newman 4, El Paso, TX	CT	59	59	NG	PL	F02	TK	1975	
EPE	Newman 4, El Paso, TX	CT	59	59	NG	PL	F02	TK	1975	
EPE	Newman 4, El Paso, TX	CW	106	106	WH				1975	
EPE	Rio Grande 1, Near El Paso, TX	ST	13	13	NG	PL	F04	TK,RR	1930	
EPE	Rio Grande 2, Near El Paso, TX	ST	13	13	NG	PL	F04	TK,RR	1929	
EPE	Rio Grande 3, Near El Paso, TX	ST	19	19	F04	TK,RR	NG	PL	1949	
EPE	Rio Grande 4, Near El Paso, TX	ST	34	34	F04	TK,RR	NG	PL	1951	
EPE	Rio Grande 5, Near El Paso, TX	ST	32	32	F04	TK,RR	NG	PL	1954	
EPE	Rio Grande 6, Near El Paso, TX	ST	47	47	F04	TK,RR	NG	PL	1957	
EPE	Rio Grande 7, Near El Paso, TX	ST	47	47	F04	TK,RR	NG	PL	1958	
EPE	Rio Grande 8, Near El Paso, TX	ST	147	147	F02	TK,RR	NG	PL	1972	
IID	Drop 2 (2), Holtville, CA	HY	8	0	WAT					Minimum 14 MW total cap. Available from IID hydro gen According to 5 yr history
IID	Drop 3 (2), Holtville, CA	HY	8	0	WAT					
IID	Drop 4 (2), Holtville, CA	HY	16	0	WAT					
IID	Pilot Knob (2), Winterhaven, CA	HY	7	0	WAT					
IID	Brawley GT 1, Brawley, CA	GT	11	11	F02	TK	None		1962	
IID	Brawley GT 2, Brawley, CA	GT	11	11	F02	TK	None		1962	
IID	Brawley Diesel 1-8, Brawley, CA	IC	12	12	F02	TK	None		1939	
IID	Coachella GT 1, Coachella, CA	GT	20	20	F02	TK	NG	PL	1973	
IID	Coachella GT 2, Coachella, CA	GT	20	20	F02	TK	NG	PL	1973	
IID	Coachella GT 3, Coachella, CA	GT	20	20	F02	TK	NG	PL	1974	
IID	Coachella GT 4, Coachella, CA	GT	20	20	F02	TK	NG	PL	1977	
IID	El Centro 1, El Centro, CA	ST	22	22	F06	TK	NG	PL	1949	
IID	El Centro 2, El Centro, CA	ST	30	30	F06	TK	NG	PL	1952	
IID	El Centro 3, El Centro, CA	ST	48	48	F06	TK	NG	PL	1957	
IID	El Centro 4, El Centro, CA	ST	80	80	F06	TK	NG	PL	1968	
LAS	Los Alamos Station, Los Alamos, NM	ST	16	16	NG	PL	F02	TK	1946	
PEGT	Algodones 1, Algodones, NM	ST	15	15	NG	PL	F06	TK	1954	
PEGT	Algodones 2, Algodones, NM	ST	15	15	NG	PL	F06	TK	1954	
PEGT	Algodones 3, Algodones, NM	ST	15	15	NG	PL	F06	TK	1959	
PNM	Las Vegas Unit 1, Las Vegas, NM	GT	20	20	NG	PL	F02	TK	1973	PNM plans to test all units

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EXISTING GENERATION CAPABILITY

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ARIZONA - NEW MEXICO POWER AREA

Org.	Thermal - Plant Name, Unit No., Location	Unit Type	New Capability (MW)		Primary Fuel		Alternate Fuel		Thermal Unit	Comments
	Hydro - Plant Name (No. of Units) Location		Summer	Winter	Fuel Type	Delivery Methods	Fuel Type	Delivery Methods	Commercial Operation	
PNM	Person Unit 1, Albuquerque, NM	ST	18	18	NG	PL	F02	TK,RR,PL	1952	In the near future to obtain summer and winter ratings. This comment applies to all PNM units in this report. For the past 3 years, all fuel oil deliveries have been by tanker truck. This comment applies to units with rail and/or pipeline delivery methods in addition to trucking.
PNM	Person Unit 2, Albuquerque, NM	ST	18	18	NG	PL	F02	TK,RR,PL	1953	
PNM	Person Unit 3, Albuquerque, NM	ST	28	28	NM	PL	F04	TK,RR	1954	
PNM	Person Unit 4, Albuquerque, NM	ST	32	32	NG	PL	F04	TK,RR	1957	
PNM	Prager Unit 7, Albuquerque, NM	ST	6	6	NG	PL	F02	TK,RR	1945	
PNM	Prager Unit 8, Albuquerque, NM	ST	5	5	NG	PL	F02	TK,RR	1947	
PNM	Prager Unit 9, Albuquerque, NM	ST	11	11	NG	PL	F02	TK,RR	1948	
PNM	Reeves Unit 1, Albuquerque, NM	ST	50	50	NG	PL	F04	TK,RR	1960	
PNM	Reeves Unit 2, Albuquerque, NM	ST	50	50	NG	PL	F04	TK,RR	1959	
PNM	Reeves Unit 3, Albuquerque, NM	ST	75	75	NG	PL	F04	TK,RR	1962	
PNM	Santa Fe Unit 1, Santa Fe, NM	ST	5	5	NG	PL	F02	TK	1949	
PNM	Santa Fe Unit 2, Santa Fe, NM	ST	6	6	NG	PL	F02	TK	1949	
PNM	San Juan Unit 1, Waterflow, NM	ST	314	314	BIT	TK	None		1976	
PNM	San Juan Unit 2, Waterflow, NM	ST	306	306	BIT	TK	None		1973	
SCIP	Coolidge Dam (2), Gila, Co., AZ	HY	10	10	WAT					Water supply not dependable for full 2 MW.
SRP	Crosscut (1), Tempe, AZ	HY	0	0	WAT					
SRP	Horse Mesa (1), Salt River, AZ	PS	96	96	WAT					
SRP	Horse Mesa (3), Salt River, AZ	HY	33	30	WAT					
SRP	Mormon Flat (1), Salt River, AZ	PS	44	44	WAT					
SRP	Mormon Flat (1), Salt River, AZ	HY	10	10	WAT					
SRP	Roosevelt (1), Salt River, AZ	HY	36	36	WAT					
SRP	Stewart Mtn (1), Salt River, AZ	HY	13	0	WAT					
SRP	Agua Fria 1, Glendale, AZ	ST	109	111	F06	TK,RR	NG	PL	1958	
SRP	Agua Fria 2, Glendale, AZ	ST	109	111	F06	TK,RR	NG	PL	1957	
SRP	Agua Fria 3, Glendale, AZ	ST	180	182	F06	TK,RR	NG	PL	1961	
SRP	Agua Fria 4, Glendale, AZ	GT	66	69	F02	TK,RR,PL	None		1975	
SRP	Agua Fria 5, Glendale, AZ	GT	66	69	F02	TK,RR,PL	None		1974	
SRP	Agua Fria 6, Glendale, AZ	GT	66	69	F02	TK,RR,PL	None		1974	
SRP	Crosscut, Tempe, AZ	ST	32	32	F02	TK,RR,PL	NG	PL	1941	
SRP	Kyrene 1, Tempe, AZ	ST	34	34	F02	TK,RR,PL	NG	PL	1952	
SRP	Kyrene 2, Tempe, AZ	ST	70	70	F02	TK,RR,PL	NG	PL	1954	
SRP	Kyrene GT 3, Tempe, AZ	GT	48	60	F02	TK,RR,PL	NG	PL	1972	Four 8 MW units
SRP	Kyrene GT 4, Tempe, AZ	GT	48	60	F02	TK,RR,PL	NG	PL	1971	
SRP	Kyrene GT 5, Tempe, AZ	GT	42	53	F02	TK,RR,PL	NG	PL	1973	
SRP	Kyrene GT 6, Tempe, AZ	GT	42	53	F02	TK,RR,PL	NG	PL	1973	
SRP	Navajo 1, Page, AZ	ST	750	750	SUB	RR,TK	None		1974	
SRP	Navajo 2, Page, AZ	ST	750	750	SUB	RR,TK	None		1975	
SRP	Navajo 3, Page, AZ	ST	750	750	SUB	RR,TK	None		1976	
										Navajo 1, 2, 3 ownership: SRP 21.7%, USBR 24.3%, LDWP 21.2%, APS 14%, NEVP 11.3%, TGE 7.5%.

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## ARIZONA - NEW MEXICO POWER AREA

Org.	Thermal - Plant Name, Unit No., Location	Unit Type	New Capability (MW)		Primary Fuel		Alternate Fuel		Thermal Unit	Comments
	Hydro - Plant Name (No. of Units) Location		Summer	Winter	Fuel Type	Delivery Methods	Fuel Type	Delivery Methods	Commercial Operation	
SRP	San Tan 1, Gilbert, AZ	CW	24	26	WH				1974	Revised operating limit operated by LDWP for Arizona Power Authority Operated by USBR; USBR-52 MW, MWD-52 MW
SRP	San Tan 1, Gilbert, AZ	CT	48	52	F02	TK,RR,PL	None		1974	
SRP	San Tan 2, Gilbert, AZ	CW	24	26	WH				1974	
SRP	San Tan 2, Gilbert, AZ	CT	48	52	F02	TK,RR,PL	None		1974	
SRP	San Tan 3, Gilbert, AZ	CW	24	26	WH				1974	
SRP	San Tan 3, Gilbert, AZ	CT	48	52	F02	TK,RR,PL	None		1974	
SRP	San Tan 4, Gilbert, AZ	CW	24	26	WH				1975	
SRP	San Tan 4, Gilbert, AZ	CT	48	52	F02	TK,RR,PL	None		1975	
TGE	Demoss Petrie 1, Tucson, AZ	ST	15	15	F06	RR,TK	NG	PL	1949	
TGE	Demoss Petrie 2, Tucson, AZ	ST	13	13	F06	RR,TK	NG	PL	1949	
TGE	Demoss Petrie 3, Tucson, AZ	ST	24	24	F06	RR,TK	NG	PL	1953	
TGE	Demoss Petrie 4, Tucson, AZ	ST	46	46	F06	RR,TK	NG	PL	1954	
TGE	Demoss Petrie GT 1, Tucson, AZ	GT	47	47	F02	RR,TK,PL	NG	PL	1973	
TGE	Irvington 1, Tucson, AZ	ST	81	81	F06	RR,TK,PL	NG	PL	1958	
TGE	Irvington 2, Tucson, AZ	ST	81	81	F06	RR,TK,PL	NG	PL	1960	
TGE	Irvington 3, Tucson, AZ	ST	104	104	F06	RR,TK,PL	NG	PL	1962	
TGE	Irvington 4, Tucson, AZ	ST	156	156	F06	RR,TK,PL	NG	PL	1967	
TGE	Irvington GT 1, Tucson, AZ	GT	24	24	F02	RR,TK,PL	NG	PL	1972	
TGE	Irvington GT 2, Tucson, AZ	GT	25	25	F02	RR,TK,PL	NG	PL	1972	
TGE	Irvington GT 3, Tucson, AZ	GT	25	25	F02	RR,TK,PL	NG	PL	1973	
TGE	North Loop GT 1, Marana, AZ	GT	25	25	F02	TK	NG	PL	1972	
TGE	North Loop GT 2, Marana, AZ	GT	25	25	F02	TK	NG	PL	1972	
TGE	North Loop GT 3, Marana, AZ	GT	23	23	F02	TK	NG	PL	1972	
TGE	North Loop GT 4, Marana, AZ	GT	25	25	F02	TK	NG	PL	1973	
USLC	Davis (5), Bullhead City, AZ	HY	268	268	WAT					
USLC	Hoover A3 & A4 (2), Boulder City, NV	HY	165	165	WAT					
USLC	Parker (4), Parker, AZ	HY	104	104	WAT					
USSW	Elephant Butte (3), T. or C. NM	HY	15	15	WAT					

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SOUTHERN CALIFORNIA - NEVADA POWER AREA

Org.	Thermal - Plant Name, Unit No., Location	Unit Type	Net Capability (MW)		Primary Fuel		Alternate Fuel		Thermal Unit Commercial Operation	Comments
	Hydro - Plant Name (No. of Units) Location		Summer	Winter	Fuel Type	Delivery Methods	Fuel Type	Delivery Methods		
BURB	Magnolia 3, Burbank, CA	ST	21	21	F06	TK	NG	PL	1949	San Francisquito 1 & 2, San Fernando, Foothill, and Franklin power plants  Units A1, A2, A9 located in Arizona, N1-N4 & N8 located in Nevada operated by LDWP. SNEV 189 MW, USBC 20 MW, BURB 5 MW, GLEN 18 MW, PASA 11 MW, balance to LDWP.  Haiwee, Cottonwood, Division Creek, Big Pine and Pleasant Valley power plants
BURB	Magnolia 4, Burbank, CA	ST	28	28	F06	TK	NG	PL	1953	
BURB	Magnolia 5, Burbank, CA	GT	22	22	JF	TK	NG	PL	1970	
BURB	Olive 1, Burbank, CA	ST	46	46	F06	TK	NG	PL	1959	
BURB	Olive 2, Burbank, CA	ST	53	53	F06	TK	NG	PL	1964	
BURB	Olive 3, Burbank, CA	GT	24	24	JF	TK	NG	PL	1974	
BURB	Olive 4, Burbank, CA	GT	31	31	JF	TK	NG	PL	1976	
CDWR	Devil Canyon (2), San Bernardino, CA	HY	120	120	WAT					
GLEN	Grayson 1, Glendale, CA	CW	11	11	WH				1941	
GLEN	Grayson 2, Glendale, CA	CW	12	12	WH				1947	
GLEN	Grayson 3, Glendale, CA	ST	21	21	F06	TK	NG	PL	1953	
GLEN	Grayson 4, Glendale, CA	ST	47	47	F06	TK	NG	PL	1959	
GLEN	Grayson 5, Glendale, CA	ST	49	49	F06	TK	NG	PL	1964	
GLEN	Grayson 6, Glendale, CA	GT	23	23	F02	TK	NG	PL	1972	
GLEN	Grayson 7, Glendale, CA	GT	30	30	F02	TK	NG	PL	1975	
GLEN	Grayson 8, Glendale, CA	CT	75	75	F02	TK	NG	PL	1977	
LDWP	Aqueduct (12), Saugus, CA	HY	74	74	WAT					
LDWP	Castaic (7), Castaic, CA	PS	1247	1247	WAT					
LDWP	Hoover (8), Boulder City, NV	HY	755	755	WAT					
LDWP	Owens Gorge (3), Bishop, CA	HY	110	110	WAT					
LDWP	Owens Valley (7), Big Pine, CA	HY	9	9	WAT					
LDWP	Harbor 1, Wilmington, CA	ST	72	72	F06	TK, PL, WA	NG	PL	1944	
LDWP	Harbor 2, Wilmington, CA	ST	67	67	F06	TK, PL, WA	NG	PL	1948	
LDWP	Harbor 3, Wilmington, CA	ST	86	86	F06	TK, PL, WA	NG	PL	1949	
LDWP	Harbor 4, Wilmington, CA	ST	86	86	F06	TK, PL, WA	NG	PL	1949	
LDWP	Harbor 5, Wilmington, CA	ST	87	87	F06	TK, PL, WA	NG	PL	1949	
LDWP	Harbor 6, Wilmington, CA	GT	19	19	F02	TK, PL	NG	PL	1972	
LDWP	Harbor 7, Wilmington, CA	GT	19	19	F02	TK, PL	NG	PL	1972	
LDWP	Harbor 8, Wilmington, CA	GT	19	19	F02	TK, PL	NG	PL	1972	
LDWP	Harbor 9, Wilmington, CA	GT	19	19	F02	TK, PL	NG	PL	1972	

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SOUTHERN CALIFORNIA - NEVADA POWER AREA

Org.	Thermal - Plant Name, Unit No., Location	Unit Type	Net Capability (MW)		Primary Fuel		Alternate Fuel		Thermal Unit	Comments
	Hydro - Plant Name (No. of Units) Location		Summer	Winter	Fuel Type	Delivery Methods	Fuel Type	Delivery Methods	Commercial Operation	
LDWP	Haynes 1, Long Beach, CA	ST	222	222	F06	TK, PL, WA	NG	PL	1962	Units N5, N6, and N7 owned by USBR and operated by LDWP
LDWP	Haynes 2, Long Beach, CA	ST	232	232	F06	TK, PL, WA	NG	PL	1963	
LDWP	Haynes 3, Long Beach, CA	ST	220	220	F06	TK, PL, WA	NG	PL	1964	
LDWP	Haynes 4, Long Beach, CA	ST	227	227	F06	TK, PL, WA	NG	PL	1964	
LDWP	Haynes 5, Long Beach, CA	ST	344	344	F06	TK, PL, WA	NG	PL	1966	
LDWP	Haynes 6, Long Beach, CA	ST	344	344	F06	TK, PL, WA	NG	PL	1967	
LDWP	Scattergood 1, Playa del Rey, CA	ST	179	179	F06	TK, PL	NG	PL	1958	
LDWP	Scattergood 2, Playa del Rey, CA	ST	179	179	F06	TK, PL	NG	PL	1959	
LDWP	Scattergood 3, Playa del Rey, CA	ST	284	284	NG	PL	None		1974	
LDWP	Valley 1, Sun Valley, CA	ST	94	94	F06	TK, RR	NG	PL	1954	
LDWP	Valley 2, Sun Valley, CA	ST	101	101	F06	TK, RR	NG	PL	1954	
LDWP	Valley 3, Sun Valley, CA	ST	171	171	F06	TK, RR	NG	PL	1955	
LDWP	Valley 4, Sun Valley, CA	ST	160	160	F06	TK, RR	NG	PL	1956	
MWD	Hoover (3), Boulder City, NV	HY	261	261	WAT					
NEVP	Clark 1, Las Vegas, NV	ST	48	48	NG	PL	F06	TK	1955	
NEVP	Clark 2, Las Vegas, NV	ST	72	72	NG	PL	F06	TK	1956	
NEVP	Clark 3, Las Vegas, NV	ST	73	73	NG	PL	F02	TK	1961	
NEVP	Clark 4, Las Vegas, NV	GT	59	59	NG	PL	F02	TK	1973	
NEVP	Reid Gardner 1, Moapa, NV	ST	110	110	BIT	RR	F02	TK, RR	1965	
NEVP	Reid Gardner 2, Moapa, NV	ST	110	110	BIT	RR	F02	TK, RR	1968	
NEVP	Reid Gardner 3, Moapa, NV	ST	110	110	BIT	RR	F02	TK, RR	1976	
NEVP	Sunrise 1, Las Vegas, NV	ST	83	83	NG	PL	F06	TK, RR	1964	
NEVP	Sunrise 2, Las Vegas, NV	GT	69	69	NG	PL	F02	TK	1974	
NEVP	Westside Diesels, Las Vegas, NV	IC	30	30	F02	TK	None		1963	
PASA	Azusa Dam (1), Azusa, CA	HY	2	2	WAT					
PASA	Broadway 1, Pasadena, CA	ST	45	45	F06	TK	NG	PL	1954	
PASA	Broadway 2, Pasadena, CA	ST	45	45	F06	TK	NG	PL	1957	
PASA	Broadway 3, Pasadena, CA	ST	71	71	F06	TK	NG	PL	1965	
PASA	Glenarm 8, Pasadena, CA	ST	14	14	F06	TK	NG	PL	1932	
PASA	Glenarm 9, Pasadena, CA	ST	45	45	F06	TK	NG	PL	1949	
PASA	Glenarm 1, Pasadena, CA	GT	26	26	F02	TK	NG	PL	1976	
PASA	Glenarm 2, Pasadena, CA	GT	26	26	F02	TK	NG	PL	1976	

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SOUTHERN CALIFORNIA - NEVADA POWER AREA

Org.	Thermal - Plant Name, Unit No., Location	Unit Type	New Capability (MW)		Primary Fuel		Alternate Fuel		Thermal Unit	Comments
	Hydro - Plant Name (No. of Units) Location		Summer	Winter	Fuel Type	Delivery Methods	Fuel Type	Delivery Methods	Commercial Operation	
SCE	Median Year Adjustment	HY	-41	-82	WAT					Edison does not have summer/ winter median year capacity data by plants as individual plant capacity varies in response to maintenance sched- ules and water diversions. Nameplate ratings are reported.
SCE	Big Creek No. 1 (4), Big Creek, CA	HY	81	81	WAT					
SCE	Big Creek No. 2 (4), Big Creek, CA	HY	66	66	WAT					A5-95MW, A6-95MW, A7-95MW, A8-46NW. Units owned by USBR and operated by SCE
SCE	Big Creek No. 2A (2), Big Creek, CA	HY	96	96	WAT					
SCE	Big Creek No. 3 (4), Big Creek, CA	HY	138	138	WAT					
SCE	Big Creek No. 4 (2), Big Creek, CA	HY	91	91	WAT					
SCE	Big Creek No. 8 (2), Big Creek, CA	HY	58	58	WAT					
SCE	Bishop Creek No.2 (3), Bishop, CA	HY	7	7	WAT					
SCE	Bishop Creek No.3 (3), Bishop, CA	HY	8	8	WAT					
SCE	Bishop Creek No.4 (5), Bishop, CA	HY	8	8	WAT					
SCE	Bishop Creek No.5 (2), Bishop, CA	HY	4	4	WAT					
SCE	Bishop Creek No.6 (1), Bishop, CA	HY	2	2	WAT					
SCE	Borel (3), Kernville, CA	HY	10	10	WAT					
SCE	Fontana (2), San Bernardino, CA	HY	2	2	WAT					
SCE	Hoover (4), Boulder City, NV	HY	331	331	WAT					
SCE	Kaweah No.1 (1), Three Rivers, CA	HY	2	2	WAT					
SCE	Kaweah No.2 (1), Three Rivers, CA	HY	2	2	WAT					
SCE	Kaweah No.3 (2), Three Rivers, CA	HY	4	4	WAT					
SCE	Kern R. 1 (4), Bakersfield, CA	HY	25	25	WAT					
SCE	Kern R. 3 (2), Bakersfield, CA	HY	36	36	WAT					
SCE	Lower Tule (2), Springville, CA	HY	2	2	WAT					
SCE	Lundy (2), Lee Vining, CA	HY	3	3	WAT					
SCE	Lytle Cr. (2), San Bernardino, CA	HY	1	1	WAT					
SCE	Mammoth Pool (2), Big Creek, CA	HY	150	150	WAT					
SCE	Mill Creek No.1 (1), Redlands, CA	HY	1	1	WAT					
SCE	Mill Creek No.2 (1), Redlands, CA	HY	1	1	WAT					
SCE	Mill Creek No.3 (3), Redlands, CA	HY	2	2	WAT					
SCE	Ontario No.1 (3), Ontario, CA	HY	1	1	WAT					
SCE	Ontario No.2 (1), Ontario, CA	HY	1	1	WAT					
SCE	Pool (1), Lee Vining, CA	HY	10	19	WAT					
SCE	Portal (1), Big Creek, CA	HY	10	10	WAT					
SCE	Rush Creek (2), Lee Vining, CA	HY	10	10	WAT					
SCE	San Gorgonio No.1 (1),Banning, CA	HY	1	1	WAT					

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Org.	Thermal - Plant Name, Unit No., Location	Unit Type	New Capability (MW)		Primary Fuel		Alternate Fuel		Thermal Unit	Comments
	Hydro - Plant Name (No. of Units) Location		Summer	Winter	Fuel Type	Delivery Methods	Fuel Type	Delivery Methods	Commercial Operation	
SCE	San Gorgonio No.2 (1), Banning, CA	HY	1	1	WAT					Two 60MW Units
SCE	Santa Ana No.1 (4), Redlands, CA	HY	4	4	WAT					
SCE	Santa Ana No.2 (2), Redlands, CA	HY	1	1	WAT					
SCE	Santa Ana No.3 (1), Redlands, CA	HY	2	2	WAT					
SCE	Sierra (2), Ontario, CA	HY	1	1	WAT					
SCE	Alamitos 1, Long Beach, CA	ST	175	175	F04	PL	NG	PL	1956	
SCE	Alamitos 2, Long Beach, CA	ST	175	175	F04	PL	NG	PL	1957	
SCE	Alamitos 3, Long Beach, CA	ST	320	320	F04	PL	NG	PL	1961	
SCE	Alamitos 4, Long Beach, CA	ST	320	320	F04	PL	NG	PL	1962	
SCE	Alamitos 5, Long Beach, CA	ST	480	480	F04	PL	NG	PL	1966	
SCE	Alamitos 6, Long Beach, CA	ST	480	480	F04	PL	NG	PL	1966	
SCE	Alamitos 7, Long Beach, CA	GT	121	121	F02	TK	NG	PL	1969	
SCE	Cool Water 1, Dagget, CA	ST	65	65	F04	TK	NG	PL	1961	
SCE	Cool Water 2, Dagget, CA	ST	81	81	F04	TK	NG	PL	1964	
SCE	Cool Water 3 CC, Dagget, CA	CT	120	120	F02	TK	NG	PL	1978	
SCE	Cool Water 3 CC, Dagget, CA	CA	60	60	F02	TK	NG	PL	1978	
SCE	Cool Water 4 CC, Dagget, CA	CT	120	120	F02	TK	NG	PL	1978	
SCE	Cool Water 4 CC, Dagget, CA	CA	60	60	F02	TK	NG	PL	1978	
SCE	Ellwood 1, Santa Barbara, CA	GT	54	54	F02	TK	NG	PL	1974	
SCE	El Segundo 1, El Segundo, CA	ST	175	175	F04	PL	NG	PL	1955	
SCE	El Segundo 2, El Segundo, CA	ST	175	175	F04	PL	NG	PL	1956	
SCE	El Segundo 3, El Segundo, CA	ST	335	335	F04	PL	NG	PL	1964	
SCE	El Segundo 4, El Segundo, CA	ST	335	335	F04	PL	NG	PL	1965	
SCE	Etiwanda 1, Etiwanda, CA	ST	132	132	F04	PL	NG	PL	1953	
SCE	Etiwanda 2, Etiwanda, CA	ST	132	132	F04	PL	NG	PL	1953	
SCE	Etiwanda 3, Etiwanda, CA	ST	320	320	F04	PL	NG	PL	1963	
SCE	Etiwanda 4, Etiwanda, CA	ST	320	320	F04	PL	NG	PL	1963	
SCE	Etiwanda 5, Etiwanda, CA	GT	121	121	F02	TK	NG	PL	1969	
SCE	Garden State 1, Pomona, CA	GT	12	12	F02	TK	NG	PL	1967	
SCE	Highgrove 1, Colton, CA	ST	32	32	F04	TK	NG	PL	1952	
SCE	Highgrove 2, Colton, CA	ST	33	33	F04	TK	NG	PL	1952	
SCE	Highgrove 3, Colton, CA	ST	44	44	F04	TK	NG	PL	1953	
SCE	Highgrove 4, Colton, CA	ST	45	45	F04	TK	NG	PL	1955	
SCE	Huntington Beach 1, Hunt. Bch, CA	ST	215	215	F04	PL,WA	NG	PL	1958	
SCE	Huntington Beach 2, Hunt. Bch, CA	ST	215	215	F04	PL,WA	NG	PL	1958	
SCE	Huntington Beach 3, Hunt. Bch, CA	ST	215	215	F04	PL,WA	NG	PL	1961	
SCE	Huntington Beach 4, Hunt. Bch, CA	ST	225	225	F04	PL,WA	NG	PL	1961	
SCE	Huntington Beach 5, Hunt. Bch, CA	GT	121	121	F02	TK	NG	PL	1969	
SCE	Long Beach 8 CC, Long Beach, CA	CT	200	200	F02	TK	NG	PL	1976	
SCE	Long Beach 8 CC, Long Beach, CA	CW	79	82	WH				1976	
SCE	Long Beach 9 CC, Long Beach, CA	CT	150	150	F02	TK	NG	PL	1977	
SCE	Long Beach 9 CC, Long Beach, CA	CW	60	60	WH				1977	
										Three 50MW Units

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SOUTHERN CALIFORNIA - NEVADA POWER AREA

Org.	Thermal - Plant Name, Unit No., Location	Unit Type	New Capability (MW)		Primary Fuel		Alternate Fuel		Thermal Unit Commercial Operation	Comments
	Hydro - Plant Name (No. of Units) Location		Summer	Winter	Fuel Type	Delivery Methods	Fuel Type	Delivery Methods		
SCE	Long Beach 10, Long Beach, CA	ST	106	106	F04	PL,WA	NG	PL	1928	Mohave 1&2 Ownership: SCE 56%, LDWP 20%, NEVP 14%, SRP 10%. Coal is delivered by slurry pipeline.
SCE	Long Beach 11, Long Beach, CA	ST	50	50	F04	PL,WA	NG	PL	1930	
SCE	Mandalay 1, Oxnard, CA	ST	215	215	F04	WA	NG	PL	1959	
SCE	Mandalay 2, Oxnard, CA	ST	215	215	F04	WA	NG	PL	1959	
SCE	Mandalay 3, Oxnard, CA	GT	121	121	F02	TK	NG	PL	1970	
SCE	Mohave 1, Lauflin, NV	ST	790	790	BIT	PL	NG	PL	1971	
SCE	Mohave 2, Lauflin, NV	ST	790	790	BIT	PL	NG	PL	1971	
SCE	Ormond Beach 1, Oxnard, CA	ST	750	750	F04	WA	NG	PL	1971	Ownership: 80% SCE, 20% SDGE
SCE	Ormond Beach 2, Oxnard, CA	ST	750	750	F04	WA	NG	PL	1973	
SCE	Redondo Beach 1, Redondo Bch, CA	ST	74	74	F04	PL	NG	PL	1948	
SCE	Redondo Beach 2, Redondo Bch, CA	ST	74	74	F04	PL	NG	PL	1948	
SCE	Redondo Beach 3, Redondo Bch, CA	ST	70	70	F04	PL	NG	PL	1949	
SCE	Redondo Beach 4, Redondo Bch, CA	ST	74	74	F04	PL	NG	PL	1949	
SCE	Redondo Beach 5, Redondo Bch, CA	ST	175	175	F04	PL	NG	PL	1954	
SCE	Redondo Beach 6, Redondo Bch, CA	ST	175	175	F04	PL	NG	PL	1957	
SCE	Redondo Beach 7, Redondo Bch, CA	ST	480	480	F04	PL	NG	PL	1967	
SCE	Redondo Beach 8, Redondo Bch, CA	ST	480	480	F04	PL	NG	PL	1967	
SCE	San Bernardino 1, San Bern., CA	ST	63	63	F04	TK	NG	PL	1957	
SCE	San Bernardino 2, San Bern., CA	ST	63	63	F04	TK	NG	PL	1958	
SCE	San Onofre 1, San Clemente, CA	NP	436	436	UR				1968	
SDGE	Division GT 1, San Diego, CA	GT	16	20	F02	TK	NONE		1968	
SDGE	El Cajon GT 1, El Cajon, CA	GT	17	21	F02	TK	NG	PL	1968	
SDGE	Encina 1, Carlsbad, CA	ST	100	100	F06	WA	NG	PL	1954	
SDGE	Encina 2, Carlsbad, CA	ST	102	102	F06	WA	NG	PL	1956	
SDGE	Encina 3, Carlsbad, CA	ST	102	102	F06	WA	NG	PL	1958	
SDGE	Encina 4, Carlsbad, CA	ST	287	287	F06	WA	NG	PL	1973	
SDGE	Encina 5, Carlsbad, CA	ST	320	320	F06	WA	NONE		1978	
SDGE	Encina GT 1, Carlsbad, CA	GT	16	20	F02	TK	NG	PL	1968	
SDGE	Kearny GT 1, San Diego, CA	GT	17	21	F02	TK	NG	PL	1972	
SDGE	Kearny GT 2(ABCD), San Diego, CA	GT	65	81	F02	TK	NG	PL	1969	
SDGE	Kearny GT 3(ABCD), San Diego, CA	GT	65	81	F02	TK	NG	PL	1969	
SDGE	Miramar GT 1(AB), San Diego, CA	GT	38	46	F02	TK	NG	PL	1972	
SDGE	Naval Station GT 1, San Diego, CA	GT	25	32	F02	TK	NONE		1976	
SDGE	North Island GT 1, Coronado, CA	GT	21	23	F02	TK	NONE		1972	
SDGE	North Island GT 2, Coronado, CA	GT	20	23	F02	TK	NONE		1972	
SDGE	NTC GT 1, San Diego, CA	GT	16	20	F02	TK	NG	PL	1968	
SDGE	Silver Gate 1, San Diego, CA	ST	38	38	F02	PL	NG	PL	1943	
SDGE	Silver Gate 2, San Diego, CA	ST	64	64	F02	PL	NG	PL	1948	
SDGE	Silver Gate 3, San Diego, CA	ST	64	64	F02	PL	NG	PL	1950	

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SOUTHERN CALIFORNIA - NEVADA POWER AREA

Org.	Thermal - Plant Name, Unit No., Location	Unit Type	New Capability (MW)		Primary Fuel		Alternate Fuel		Thermal Unit	Comments
	Hydro - Plant Name (No. of Units) Location		Summer	Winter	Fuel Type	Delivery Methods	Fuel Type	Delivery Methods	Commercial Operation	
SDGE	Silver Gate 4, San Diego, CA	ST	64	64	F02	PL	NG	PL	1952	Header plant with 4 main turbogenerators and 1 house turbogenerator. Capability shown is boiler limited
SDGE	South Bay 1, Chula Vista, CA	ST	140	140	F06	WA	NG	PL	1960	
SDGE	South Bay 2, Chula Vista, CA	ST	142	142	F06	WA	NG	PL	1962	
SDGE	South Bay 3, Chula Vista, CA	ST	198	198	F06	WA	NG	PL	1964	
SDGE	South Bay 4, Chula Vista, CA	ST	220	220	F06	WA	NG	PL	1971	
SDGE	South Bay GT 1, Chula Vista, CA	GT	18	22	JF	TK	None		1966	
SDGE	Station B, San Diego, CA	ST	87	87	F02	PL	NG	PL	1941	
SNEV	Stauffer Chemical, Henderson, NV	ST	10	10	NG	PL	F02	TK,RR	1970	
SNEV	Stauffer Chemical, Henderson, NV	GT	15	15	NG	PL	F02	TK,RR	1970	

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ARIZONA - NEW MEXICO POWER AREA

Org.	Plant Name, Unit No., Location	Unit Type	Net Capability (MW)		Primary Fuel		Alt. Fuel Type	Commercial Operation Date			Stat	Comments
			Summer	Winter	Fuel Type	Deliv. Method		Prev.	New	Date		
AEPC	Apache 2, Cochise AZ	ST	175	175	SUB	RR,TK	None	6-78	Yes	1-79	E	Testing delay.
IID	Brawley GT 1, Brawley CA	GT	-2		FO2	TK	None			1-79	D	Capability change summer only
IID	Brawley GT 2, Brawley CA	GT	-2		FO2	TK	None			1-79	D	Capability change summer only
IID	Magma GEO 1, Holtville CA	GE	10	10	GST	PL				4-79	G	IID will purchase and sell KWH of plant
SCE	Axis GT 1, Yuma AZ	GT	22	22	FO2	TK	NG	4-79	No	4-79	G	SCE Main system 4-1-81
AEPC	Apache 3, Cochise AZ	ST	175	175	SUB	RR,TK	None	4-79	No	4-79	G	
SRP	Coronado 1, St. Johns AZ	ST	350	350	SUB	RR	None	4-79	Yes	6-79	G	Participation unit until 5-82, SRP 70%, LDWP 30%
IID	Rockwood GT 1, Brawley CA	GT	20	20	FO2	TK	None	6-79	No	6-79	T	
PNM	San Juan 3, Waterflow NM	ST	480	480	BIT	TK	None	5-79	Yes	11-79	G	Joint project; PNM 50% and TGE 50%
PNM	Prager 7&8, Albuquerque NM	ST	-11	-11	NG	PL	FO2	5-79	Yes	11-79	R	Retiring 2 units
SRP	Coronado 2, St. Johns AZ	ST	350	350	SUB	RR	None	4-80	No	4-80	T	Participation unit until 5-82, SRP 70%, LDWP 30%
EPE	Copper Station 1, El Paso TX	GT	73	73	FO2	PL	NG	5-80	No	5-80	P	
APS	Cholla 3, Joseph City AZ	ST	242	242	SUB	RR,TK	None	6-79	Yes	6-80	G	Reduced load forecast
IID	Geothermal 1, CA	GE	50	50	GST			6-80	No	6-80	P	Plant site is undetermined
IID	Rockwood GT 2, Brawley CA	GT	20	20	FO2	TK	None	6-80	No	6-80	P	
APS	Cholla 4, Joseph City AZ	ST	347	347	SUB	RR,TK	None	6-80	Yes	6-81	G	Reduced load forecast
PNM	San Juan 3, Waterflow NM	ST	-12	-12	BIT	TK	None	5-81	Yes	5-82	D	Addition of SO2 equipment
PNM	San Juan 4, Waterflow NM	ST	472	472	BIT	TK	None	5-81	Yes	5-82	T	Unit will come on-line with SO2 equipment
PNM	Prager 9, Albuquerque NM	ST	-11	-11	NG	PL	FO2	5-81	Yes	5-82	R	Retiring 1 unit
APS	Palo Verde 1, Wintersburg AZ	NP	1270	1270	UR		None	5-82	No	5-82	T	Participation: APS 29.1% SCE 15.8%, SRP 23.4%, LDWP 5.7%, EPE 15.8%, & PNM 10.2%
APS	Four Corners 4, Farmington NM	ST	-15	-15	SUB	RR,TK	None	7-82	No	7-82	D	Scrubber derating
APS	Four Corners 5, Farmington NM	ST	-15	-15	SUB	RR,TK	None	1-83	No	1-83	D	Scrubber derating
PEGT	Combustion Turbine, NM	GT	50	50	FO2	TK	None			5-83	P	
APS	Undetermined, AZ	GT	50	50	FO2	RR,TK	None			5-83	P	Peaking unit
IID	Geothermal 2, CA	GE	50	50	GST			6-83	No	6-83	P	Plant site is undetermined
EPE	Rio Grande 1&2, near El Paso TX	ST	-26	-26	FO2	TK,RR	NG	5-83	Yes	1-84	R	Retiring 2 units
PEGT	Escalante 1, Pruitt NM	ST	210	210	BIT	RR	None			5-84	P	
APS	Palo Verde 2, Wintersburg AZ	NP	1270	1270	UR		None	5-84	No	5-84	T	Participation: APS 29.1% SCE 15.8%, SRP 23.4%, LDWP 5.7%, EPE 15.8%, & PNM 10.2%
APS	Undetermined, AZ	GT	50	50	FO2	RR,TK	None			5-85	P	Peaking unit
APS	Undetermined, AZ	GT	50	50	FO2	RR,TK	None			5-85	P	Peaking unit

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ARIZONA - NEW MEXICO POWER AREA

Org.	Plant Name, Unit No., Location	Unit Type	Net Capability (MW)		Primary Fuel		Alt. Fuel Type	Commercial Operation Date			Stat	Comments
			Summer	Winter	Fuel Type	Deliv. Method		Prev.	New	Date		
TGE	Springerville 1, AZ	ST	330	330	SUB	RR	NONE	5-85	NO	5-85	T	Participation: APS 29.1%, SCE 15.8%, SRP 23.4%, LDWP 5.7%, EPE 15.8%, & PNM 10.2% Plant site is undetermined Retiring 2 units Location, Number and size of units not yet determined  Joint Project-50% PNM, 15.7% EPE & 34.3% not allocated Retiring 2 units Planned addition  Participation: APS 39.1%, EPE 4.0%, SCE 32.3%, LDWP 11.7%, SDGE 5.2%, NEVP 2.2%, ANHM 1.5%, BURB 1%, GLEN 1%, PASA 1%, and RVSD 1%. Plant site is undetermined
APS	Palo Verde 3, Wintersburg, AZ	NP	1,270	1,270	UR		NONE	5-85	NO	5-85	T	
IID	Geothermal 3, CA	GE	50	50	GST			6-86	NO	6-86	P	
PNM	Santa Fe 1&2, Santa Fe, NM	ST	-11	-11	NG	PL	F02	5-86	YES	10-86	R	
PNM	Pumped Storage Plant, NM	PS	300	300	WAT			5-85	YES	5-87	P	
TGE	Springerville 2, AZ	ST	330	330	SUB	RR	NONE			6-87	P	
PNM	New Mexico Station, Bisti, NM	ST	472	472	BIT	TK	NONE	5-83	YES	5-88	P	
PNM	Person 1&2, Albuquerque, NM	ST	-36	-36	NG	PL	F02			5-88	R	
PNM	Pumped Storage Plant, NM	PS	300	300	WAT					5-88	P	
PEGT	Escalante 2, Pruitt, NM	ST	210	210	BIT	RR	NONE			5-88	P	
APS	Palo Verde 4, Wintersburg, AZ	NP	1,270	1,270	UR		NONE			5-88	K	
IID	Geothermal 4, CA	GE	50	50	GST	PL				6-88	P	

Table 1.1-10  
WESTERN SYSTEMS COORDINATING COUNCIL  
SUMMARY OF GENERATION ADDITIONS  
Sheet 2 of 5  
ARIZONA - NEW MEXICO POWER AREA  
(Page 2 of 2)

PRC  
APERTURE  
CARD

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## SOUTHERN CALIFORNIA - NEVADA POWER AREA

Org.	Plant Name, Unit No., Location	Unit Type	Net Capability (MW)		Primary Fuel		Alt. Fuel Type	Commercial Operation Date			Stat	Comments
			Summer	Winter	Fuel Type	Deliv. Method		Prev.	New	Date		
PASA	Glenarm 8, Pasadena, CA	ST	-14	-14	F06	TK	NG	7-78	YES	1-79	M	Retire from service
MWD	Greg Ave 1, Burbank, CA	HY	1	1	WAT			10-78	YES	4-79	T	Conduit Hydro, nameplate rating
SCE	Cool Water 3CC, Dagget, CA	CT	+54	+69	F02	TK	NG			6-79	A	
SCE	Cool Water 4CC, Dagget, CA	CT	+54	+69	F02	TK	NG			6-79	A	
SCE	Long Beach 8CC, Long Beach, CA	CT	+31	+38	F02	TK	NG	6-78	YES	6-79	A	Rerate of GT portion
SCE	Long Beach 9CC, Long Beach, CA	CT	+22	+27	F02	TK	NG	6-78	YES	6-79	A	Rerate of GT portion
NEVP	Clark 5, Las Vegas, NV	GT	70	70	NG	PL	F02	6-79	NO	6-79	G	
NEVP	Clark 6, Las Vegas, NV	GT	70	70	NG	PL	F02	6-79	NO	6-79	G	
SCE	Long Beach No.11, Long Beach, CA	ST	+56	+56	F06	PL	NG	1-79	YES	7-79	A	Rerate unit from 50MW to 106MW
SCE	Big Creek 3 Unit 5, Big Creek, CA	HY	31	31	WAT			3-80	NO	3-80	T	
MWD	Lake Mathews 1, Arlington, CA	HY	5	5	WAT			3-80	NO	3-80	T	Conduit Hydro, nameplate rating
SCE	Co-Generation, CA	ZZ	24	24	WH					6-80	P	
MWD	Foothill FDR 1, L.A., CA	HY	5	5	WAT			7-80	YES	6-80	P	Conduit Hydro, nameplate rating
MWD	Foothill FDR 2, L.A., CA	HY	5	5	WAT			7-80	YES	6-80	P	Conduit Hydro, nameplate rating
NEVP	Clark 7, Las Vegas, NV	GT	70	70	NG	PL	F02	6-80	NO	6-80	K	Formerly Sunrise 3
SCE	San Onofre 2, San Clemente, CA	NP	220	220	UR			10-80	NO	10-80	G	Operation 20% of full power
MWD	San Dimas 1, La Verne, CA	HY	10	10	WAT			11-80	YES	10-80	P	Ownership: 80% SCE, 20% SDGE
MWD	Yorba Linda FDR 1, Yorba Linda, CA	HY	5	5	WAT			3-81	YES	2-81	P	Conduit Hydro, nameplate rating
MWD	Sepulveda Canyon 1, L.A., CA	HY	9	9	WAT			5-81	NO	5-81	P	Conduit Hydro, nameplate rating
SCE	Co-Generation, CA	ZZ	4	4	WH					6-81	P	
NEVP	Clark 8, Las Vegas, NV	GT	70	70	NG	PL	F02	6-81	NO	6-81	K	Formerly Sunrise 4
MWD	Venice 1, Culver City, CA	HY	10	10	WAT			9-81	NO	9-81	P	Conduit Hydro, nameplate rating
SCE	San Onofre 2, San Clemente, CA	NP	+880	+880	UR			10-81	NO	10-81	P	Unit rerated to full capability 1100MW
MWD	Temescal, NR Corona, CA	HY	3	3	WAT			11-81	NO	11-81	P	Conduit Hydro, nameplate rating formerly L Feeder A 1
SCE	San Onofre 3, San Clemente, CA	NP	220	220	UR		NONE	1-82	NO	1-82	G	Operation 20% of full power ownership: 80% SCE, 20% SDGE
CDWR	Pyramid 2, Caswell, CA	HY	38	38	WAT			1-82	NO	1-82	P	Calif. State Water Project Recovery Plant
CDWR	Pyramid 1, Caswell, CA	HY	38	38	WAT			10-81	YES	3-82	L	Calif. State Water Project Recovery Plant
MWD	Corona, NR Corona, CA	HY	3	3	WAT			3-82	NO	3-82	P	Conduit Hydro, nameplate rating formerly L Feeder B 1
SCE	Co-Generation, CA	ZZ	4	4	WH			9-81	YES	6-82	P	

Table 1.1-10  
WESTERN SYSTEMS COORDINATING COUNCIL  
SUMMARY OF GENERATION ADDITIONS  
Sheet 3 of 5  
SOUTHERN CALIFORNIA - NEVADA POWER AREA  
(Page 1 of 3)

PRC  
APERTURE  
CARD

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SOUTHERN CALIFORNIA - NEVADA POWER AREA

Org.	Plant Name, Unit No., Location	Unit Type	Net Capability (MW)		Primary Fuel		Alt. Fuel Type	Commercial Operation Date			Stat	Comments
			Summer	Winter	Fuel Type	Deliv. Method		Prev.	New	Date		
CDWR	Cottonwood 1, Los Angeles Co., CA	HY	15	15	WAT			9-81	YES	9-82	L	Calif State Water Project Recovery Plant
MWD	Santiago CR 1, Orange, CA	HY	3	3	WAT			6-82	YES	11-82	P	Conduit Hydro, nameplate rating
SCE	San Onofre 3, San Clemente, CA	NP	+880	+880	UR		NONE	1-83	NO	1-83	P	Unit rerated to full capability 1100MW
MWD	Rio Hondo 1, Southgate, CA	HY	2	2	WAT			11-82	YES	3-83	P	Conduit Hydro, nameplate rating
SCE	Wind 1, CA	WM	4	4	WND			1-86	YES	6-83	P	Expected capacity 1MW
SCE	Co-Generation, CA	ZZ	5	5	WH					6-83	P	
NEVP	Warner Valley 1, St. George, UT	ST	250	250	BIT	RR	NONE	6-83	NO	6-83	P	Joint Project: NEVP 25% PG&E 25%, SCE 25%, uncommitted 25%.
NEVP	Reid Gardner 4, Moapa, NV	ST	250	250	BIT	RR	F02			6-83	K	
SCE	Fuel Cell 1, CA	FC	26	26	UNK	XX		7-83	NO	7-83	P	Fifteen 26MW fuel cells are under consideration for use at various locations not yet determined fuel undetermined.
MWD	Covina 1, Covina, CA	HY	3	3	WAT			3-83	YES	7-83	P	Conduit Hydro, nameplate rating
MWD	Coyote CR 1, La Habra, CA	HY	3	3	WAT			7-83	YES	11-83	P	Conduit Hydro, nameplate rating
PASA	Glenarm 9, Pasadena, CA	ST	-45	-45	F06	TK	NG	7-87	YES	1-84	M	Retire from service
SCE	Geothermal 1, Brawley, CA	GE	9	9	GST					6-84	P	
SCE	Co-Generation, CA	ZZ	4	4	WH					6-84	P	
NEVP	Warner Valley 2, St. George, UT	ST	250	250	BIT	RR	NONE	6-84	NO	6-84	P	Joint project: NEVP 25%, PG&E 25%, SCE 25%, uncommitted 25%.
LDWP	Scattergood 3, Playa Del Rey, CA	ST	+176	+176	F06	TK	NG			6-84	A	Convert existing natural gas unit to oil-burning capability
BURB	Magnolia 3, Burbank, CA	ST	-21	-21	F06	TK	NG			10-84	M	Retire from service
SCE	Combined Cycle GT 1-9, LUC VY, CA	GT	540	549	F02	TK	NONE	6-85	NO	6-85	P	Various combustion and steam turbines during 1981-1987. A total of 1290MW in 3 430MW combined cycle units.
SCE	Balsam Meadow Hydro, CA	HY	140	140	WAT			6-85	NO	6-85	P	Formerly Hydro
SCE	Co-Generation, CA	ZZ	4	4	WH					6-85	P	
NEVP	Allen 1, Las Vegas, NV	ST	500	500	BIT	RR	NONE	6-85	NO	6-85	P	Joint project: NEVP 8%, PG&E 46%, SCE 46%.
SCE	Fuel Cells 2&3, CA	FC	52	52	UNK	XX		5-86	NO	5-86	P	See comments for fuel cell 1
SCE	Combined Cycle CC-ST, LUC VY, CA	CA	130	133	F06	TK	NONE	6-86	NO	6-86	P	Portion of combined cycle unit

Table 1.1-10  
WESTERN SYSTEMS COORDINATING COUNCIL  
SUMMARY OF GENERATION ADDITIONS  
Sheet 4 of 5  
SOUTHERN CALIFORNIA - NEVADA POWER AREA  
(Page 2 of 3)

PRC  
APERTURE  
CARD

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Table 1.1-10

WESTERN SYSTEMS COORDINATING COUNCIL

SUMMARY OF GENERATION ADDITIONS

Sheet 5 of 5

SOUTHERN CALIFORNIA - NEVADA POWER AREA

(Page 3 of 3)

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APERTURE  
CARD

SOUTHERN CALIFORNIA - NEVADA POWER AREA

Org.	Plant Name, Unit No., Location	Unit Type	Net Capability (MW)		Primary Fuel		Alt. Fuel Type	Commercial Operation Date			Stat	Comments
			Summer	Winter	Fuel Type	Deliv. Method		Prev.	New	Date		
SCE	Combined Cycle GT, Lucerne Vy, CA	GT	-300	-305	F02	TK	NONE	6-86	NO	6-86	P	Convert to combined cycle
SCE	Combined Cycle GT 10-12,LUC V, CA	GT	180	183	F02	TK	NONE	6-86	NO	6-86	P	
SCE	Wind 2, CA	WM	6	6	WND			1-87	YES	6-86	P	
SCE	Combined Cycle CT, Lucerne Vy, CA	CT	300	305	F02	TK	NONE	6-86	NO	6-86	P	Expected capacity 2MW.
SCE	Geothermal 2, Niland, CA	GE	54	54	GST					6-86	P	
SCE	Geothermal 3, Heber, CA	GE	45	45	GST					6-86	P	
SCE	Co-Generation, CA	ZZ	4	4	WH					6-86	P	Replaces previous geothermal
NEVP	Allen 2, Las Vegas, NV	ST	500	500	BIT	RR	NONE	6-86	NO	6-86	P	
LDWP	Intermountain 1, Millard Co., UT	ST	750	750	BIT	RR	NONE	10-86	YES	7-86	P	
SCE	Fuel Cells 4&5, CA	FC	52	52	UNK	XX		1-87	YES	5-87	P	Joint project: NEVP 8%, PG&E 46%, SCE 46%. Joint project: LDWP 34.1%, ANHM 10.2%, BURB 1.7%, GLEN 1.7%, PASA 3.4%, RVSD 6.8%, ICPA 17.1%, and UPLC 25.0%. See comments for fuel cell 1
SCE	Wind 3, CA	WM	15	15	WND					6-87	P	
SCE	Combined Cycle CC-ST, LUC Vy, CA	CA	260	266	F06	TK	NONE	6-87	NO	6-87	P	
SCE	Combined Cycle CT, Lucerne Vy, CA	GT	180	183	F02	TK	NONE	6-87	NO	6-87	P	Expected capacity 5MW. Portion of combined cycle unit
SCE	Combined Cycle GT, Lucerne Vy, CA	GT	-600	-610	F02	TK	NONE	6-86	NO	6-87	P	
SCE	Combined Cycle CT, Lucerne Vy, CA	CT	600	610	F02	TK	NONE	6-87	NO	6-87	P	
SCE	Combustion Turbine 1-2, CA	GT	110	110	F02	TK	NONE	6-87	NO	6-87	P	Convert to combined cycle unit
SCE	Co-Generation, CA	ZZ	4	4	WH					6-87	P	
SCE	Calif Coal 1, CA	ST	250	250	BIT	RR	NONE			6-87	P	
NEVP	Allen 3, Las Vegas, NV	ST	500	500	BIT	RR	NONE	6-87	NO	6-87	P	Joint project: NEVP 8%, PG&E 46%, SCE 46%. Joint project: LDWP 34.1%, ANHM 10.2%, BURB 1.7%, GLEN 1.7%, PASA 3.4%, RVSD 6.8%, ICPA 17.1%, and UPLC 25.0%. See comments for fuel cell 1
LDWP	Intermountain 2, Millard Co., UT	ST	750	750	BIT	RR	NONE	10-87	YES	7-87	P	
SCE	Fuel Cells 6-9, CA	FC	104	104	UNK	XX				5-88	P	
SCE	Wind 4, CA	WM	30	30	WND					6-88	P	Expected capacity 10MW.
SCE	Co-generation, CA	ZZ	4	4	WH					6-88	P	
SCE	Calif. Coal 2, CA	ST	250	250	BIT	RR	NONE			6-88	P	
NEVP	Allen 4, Las Vegas, NV	ST	500	500	BIT	RR	NONE			6-88	P	Joint project: NEVP 8%, PG&E 46%, SCE 46%. Joint project: LDWP 34.1%, ANHM 10.2%, BURB 1.7%, GLEN 1.7%, PASA 3.4%, RVSD 6.8%, ICPA 17.1%, and UPLC 25.0%. Retire from service
LDWP	Intermountain 3, Millard Co., UT	ST	750	750	BIT	RR	NONE			7-88	P	
GLEN	Grayson 3, Glendale, CA	ST	-21	-21	F06	TK	NG			7-88	M	
BURB	Magnolia 4, Burbank, CA	ST	-28	-28	F06	TK	NG			10-88	M	Retire from service

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EXPLANATION

LITHOLOGIC DESCRIPTIONS

A. UPPER ALLUVIAL UNIT

SILTY AND GRAVELLY SANDS, WITH SOME SILTS AND CLAYS (LZ-5)

B. MIDDLE FINE GRAINED UNIT (AQUITARD)

UPPER ZONE: SILTY CLAYS WITH SOME SILTS AND SILTY SANDS (LZ-4)  
LOWER ZONE: PALO VERDE CLAY (LZ-3)

C. LOWER COARSE GRAINED UNIT

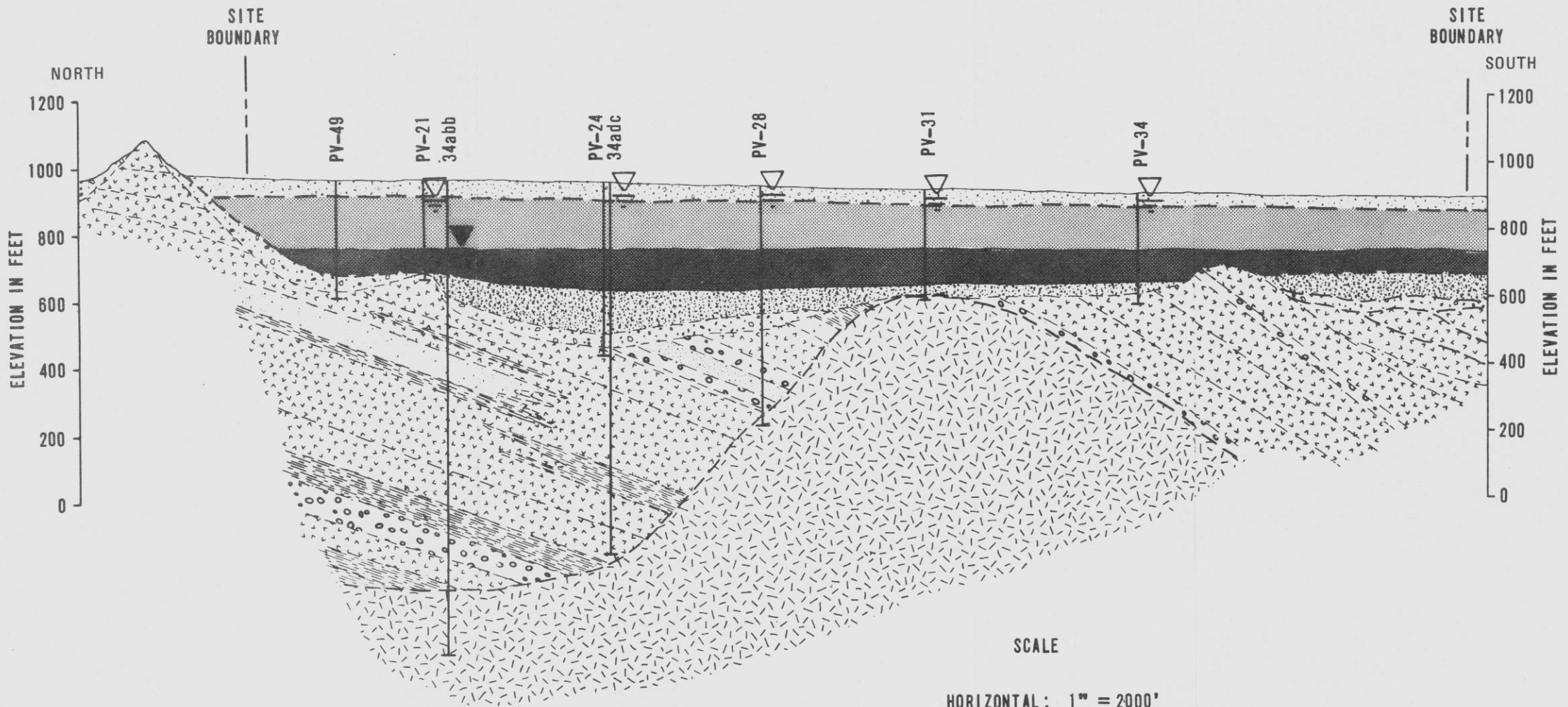
SILTY SAND, SAND AND GRAVELLY SAND (LZ-2)  
FANGLOMERATE (LZ-1)  
VOLCANIC FLOWS AND FLOW BRECCIA  
BRECCIA  
TUFFACEOUS AND ARKOSIC SANDSTONE  
TUFF

D. BASEMENT COMPLEX

GRANITIC AND METAMORPHIC ROCKS

WATER LEVELS (MARCH 1979)

PERCHED WATER ZONE  
REGIONAL AQUIFER



SCALE  
HORIZONTAL: 1" = 2000'  
VERTICAL: 1" = 400'  
VERTICAL EXAGGERATION: 5X

NOTE: DIP OF VOLCANIC FLOW BEDDING IS NOT EXAGGERATED.

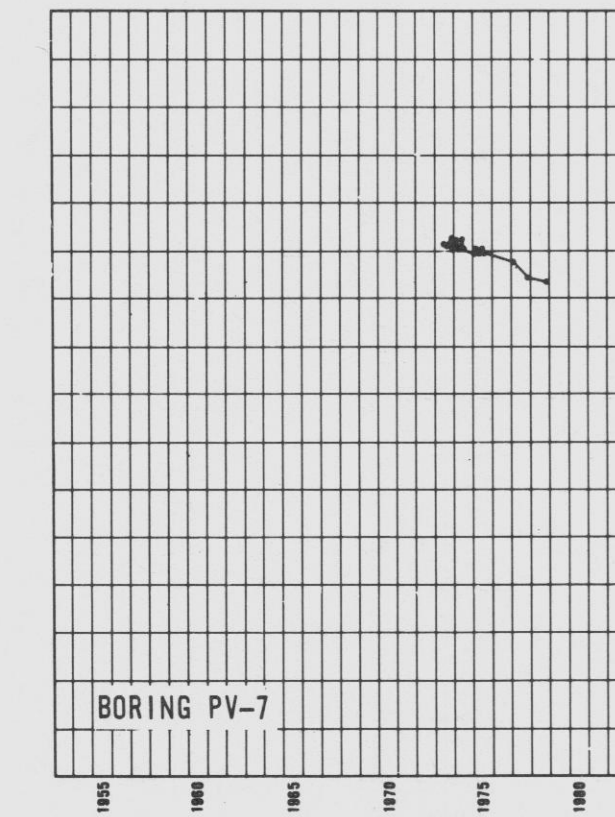
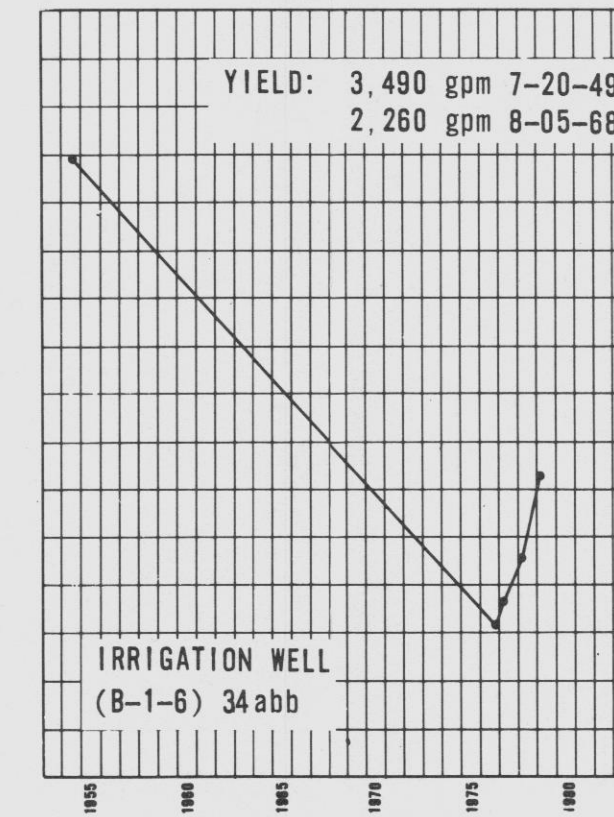
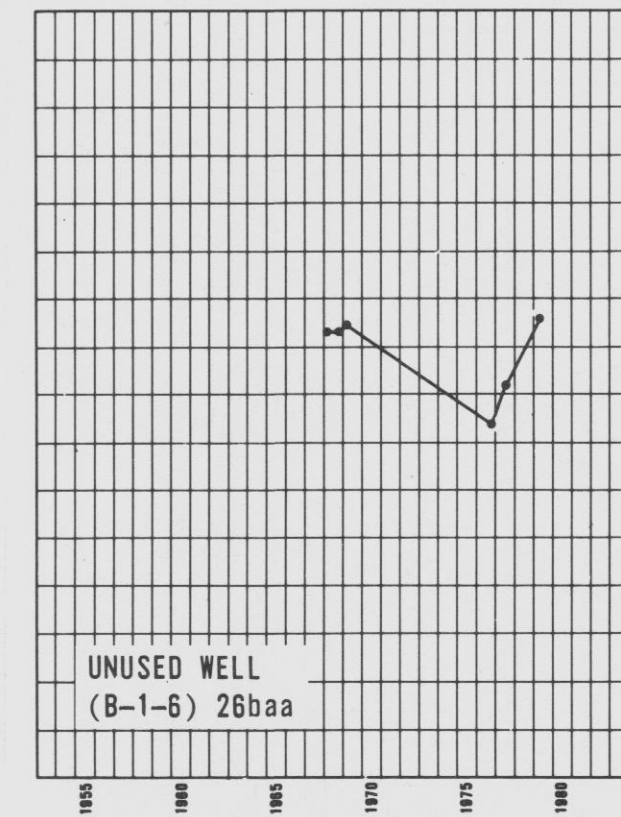
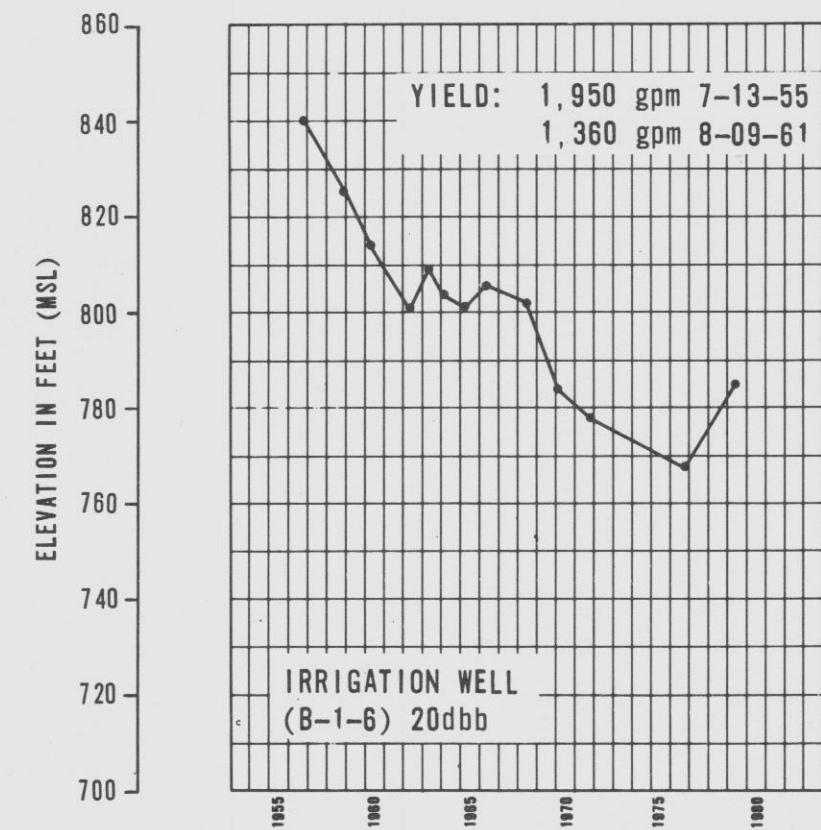
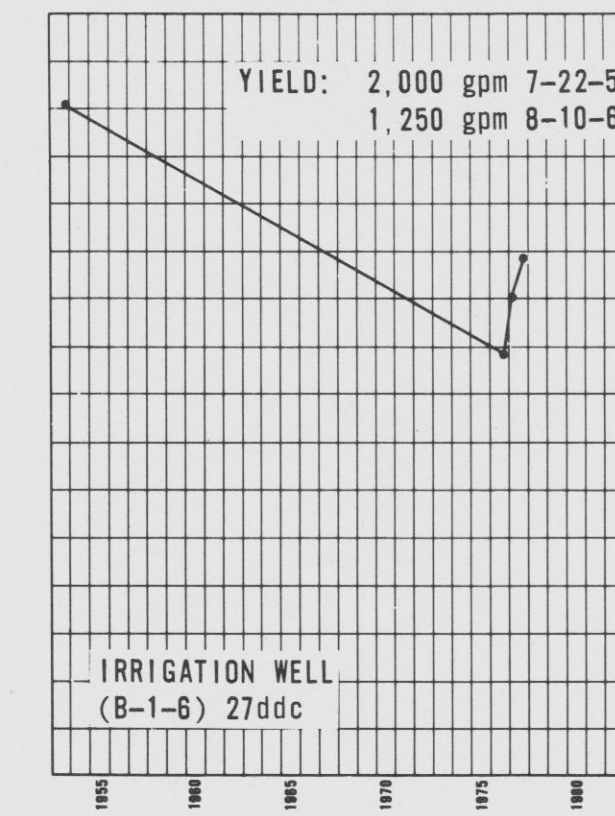
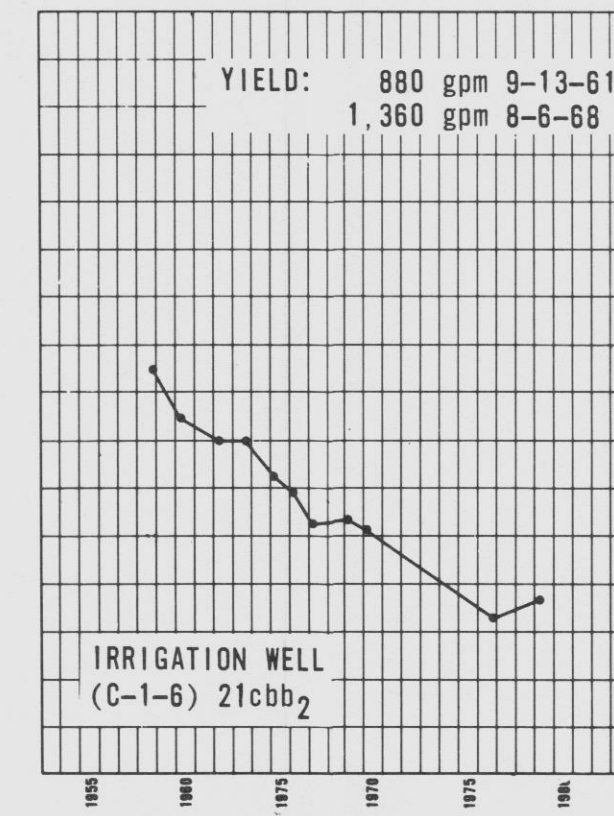
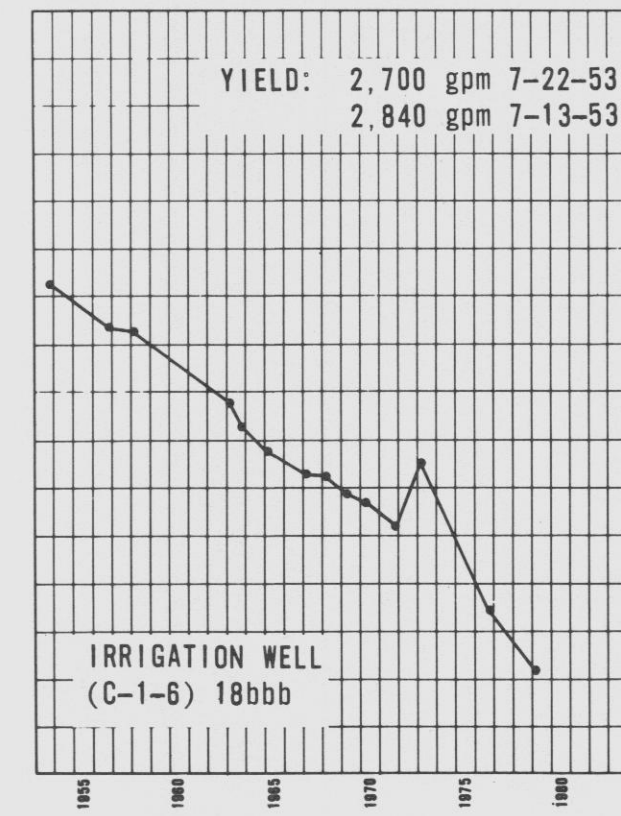
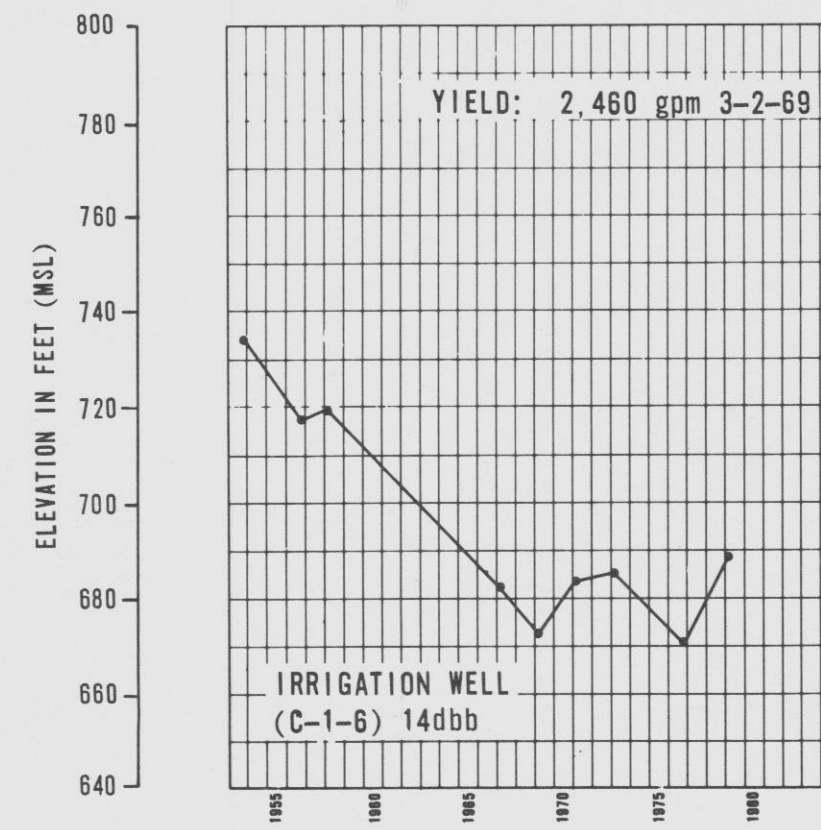
Palo Verde Nuclear Generating Station  
ER-OL

GENERALIZED HYDROGEOLOGIC  
CROSS-SECTION OF THE SITE  
Figure 2.4-1

PRC  
APERTURE  
CARD

8307290193-59





PRC  
APERTURE  
CARD

NOTE:  
WELL DATA PRIOR TO 1973 TAKEN FROM STULIK<sup>(2)</sup>.  
WATER-LEVEL DATA AFTER 1973 OBTAINED BY  
FUGRO, INC.

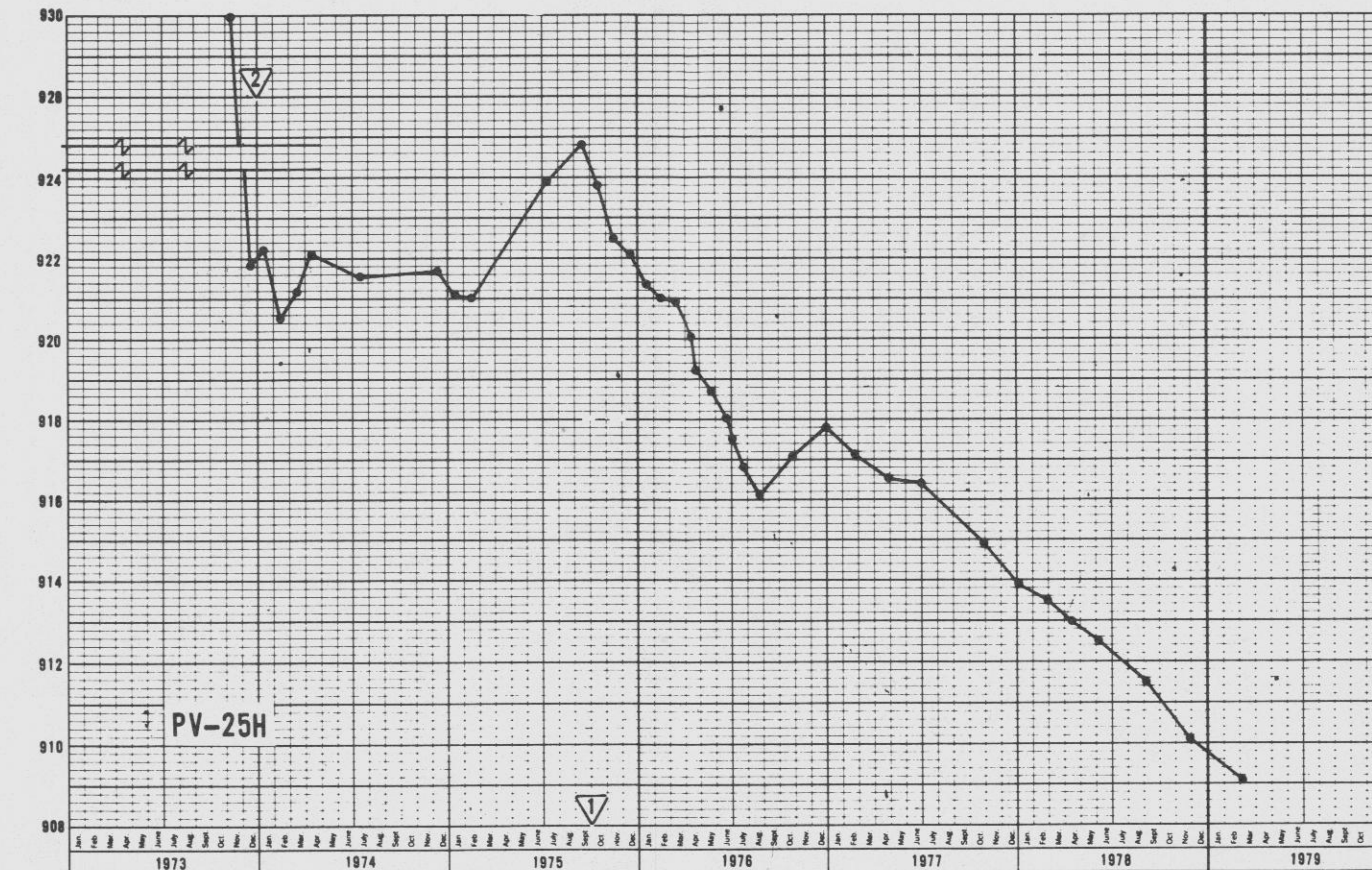
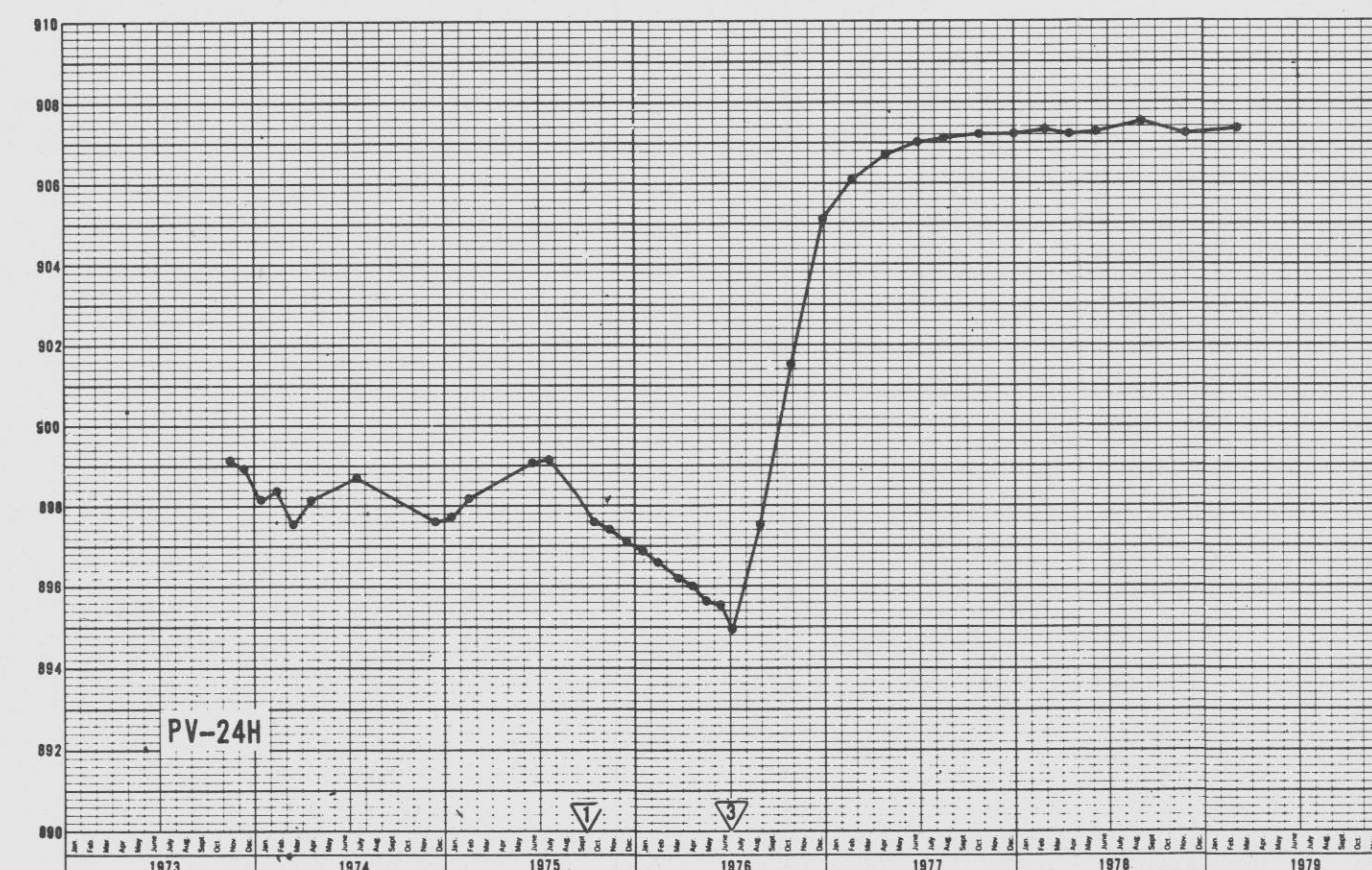
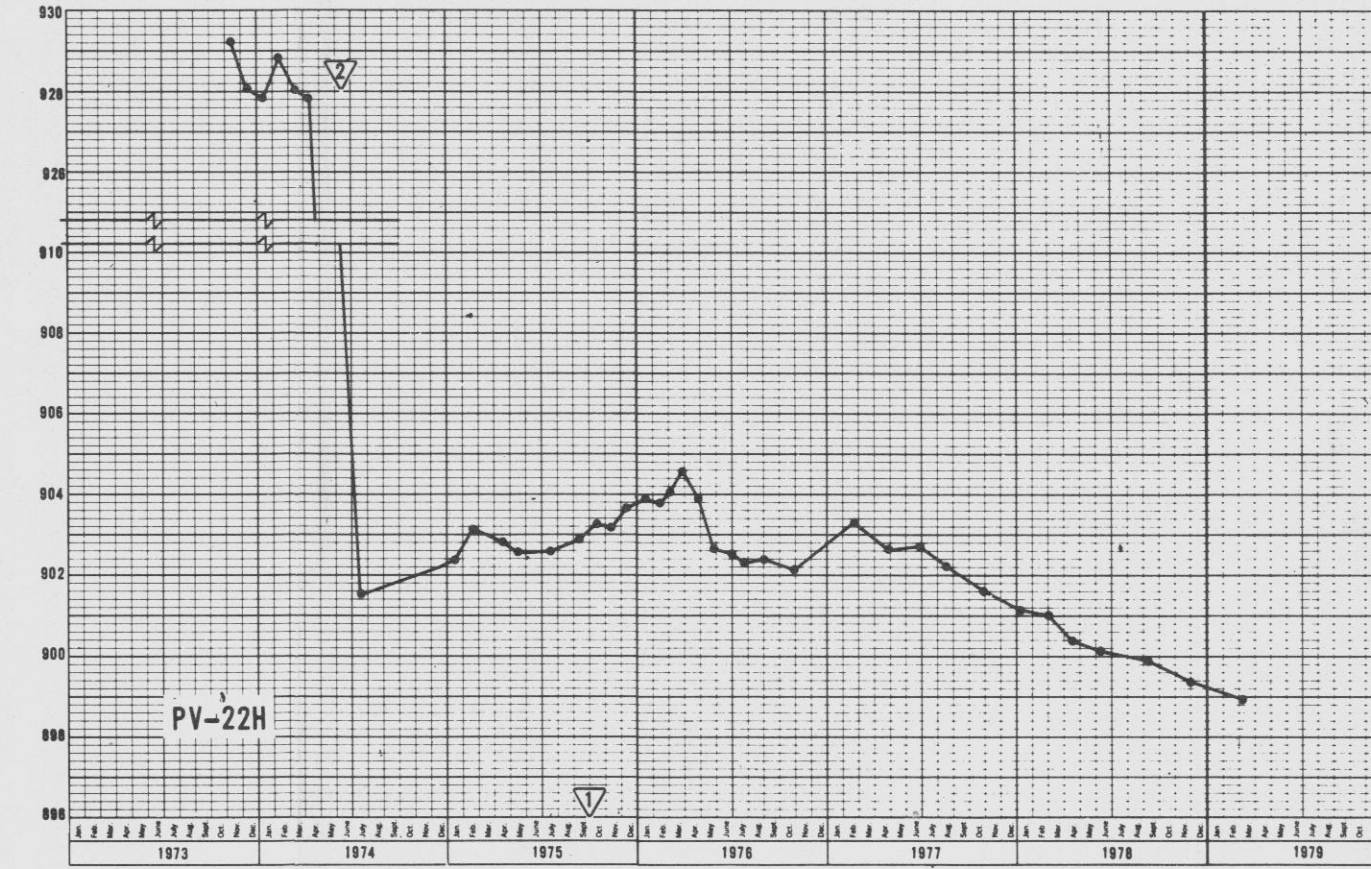
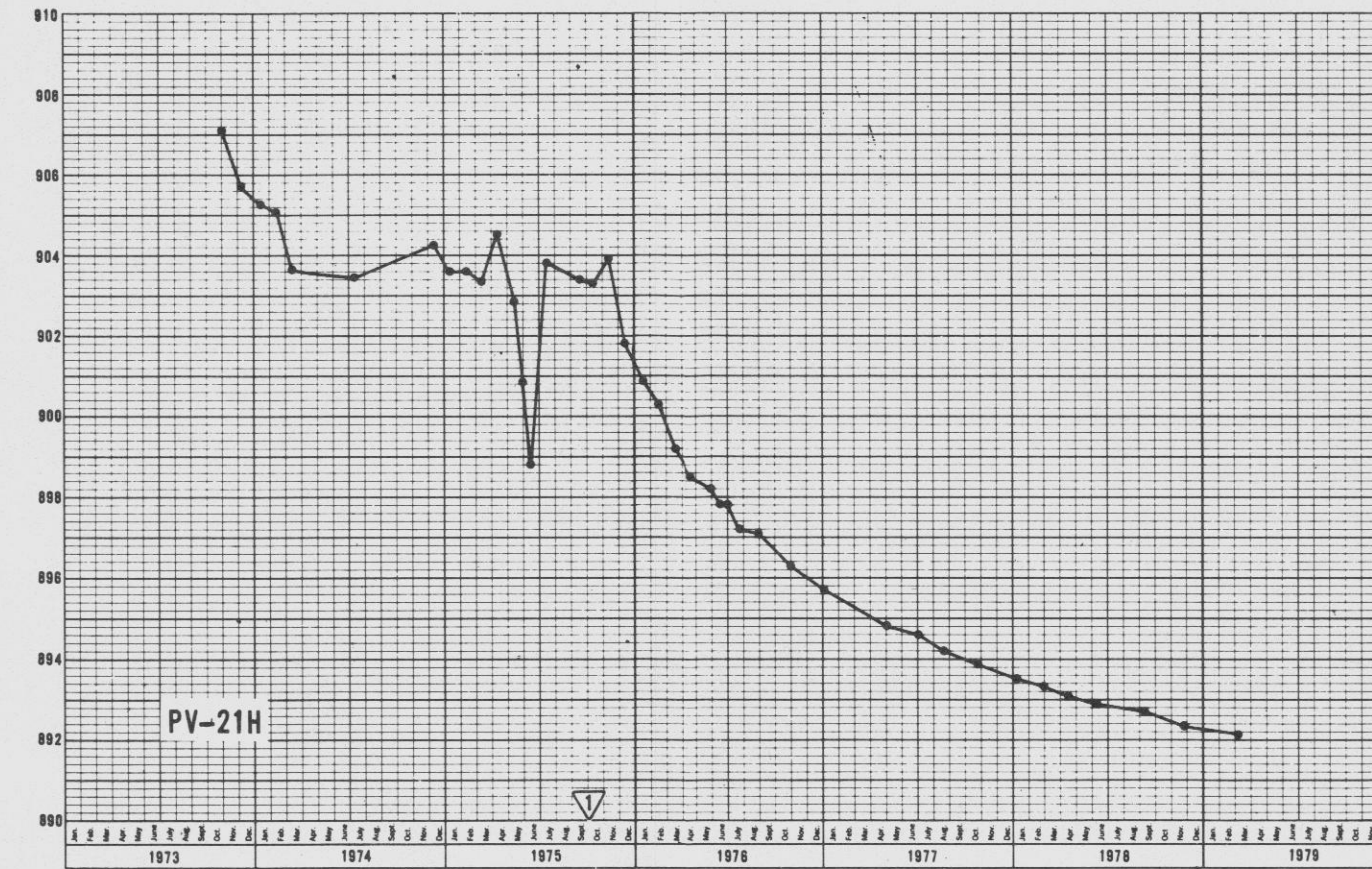
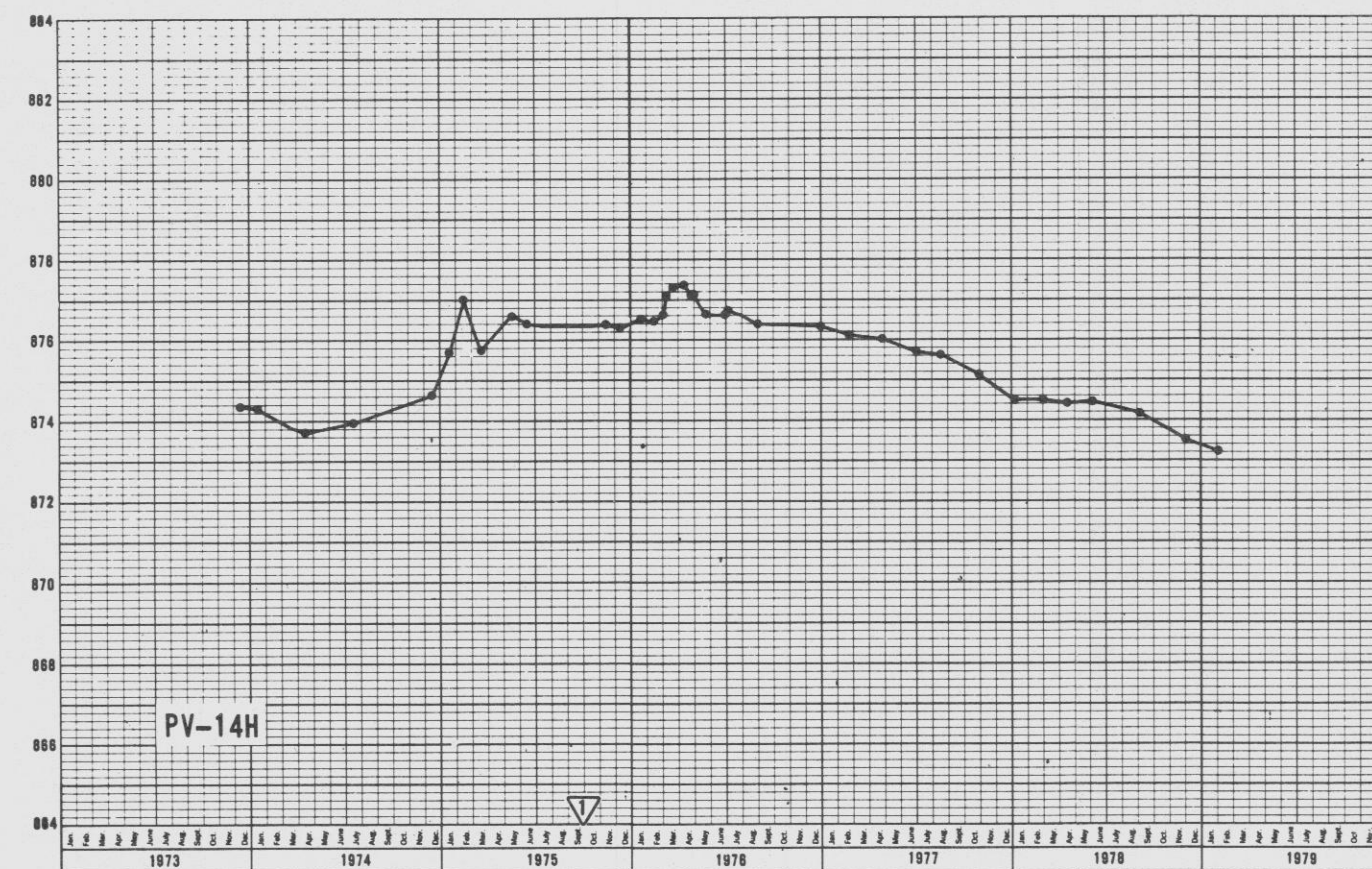
**Palo Verde Nuclear Generating Station**  
**ER-OL**

HYDROGRAPHS OF DEEP WELLS  
IN THE SITE AREA

Figure 2.4-6

8307290153-60





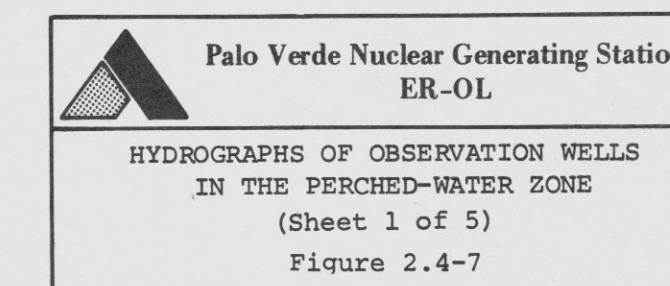
NOTES:

▽ ON SITE IRRIGATION CEASED SEPTEMBER, 1975.

▽ WELL RESPONSE TO FLUSHING.

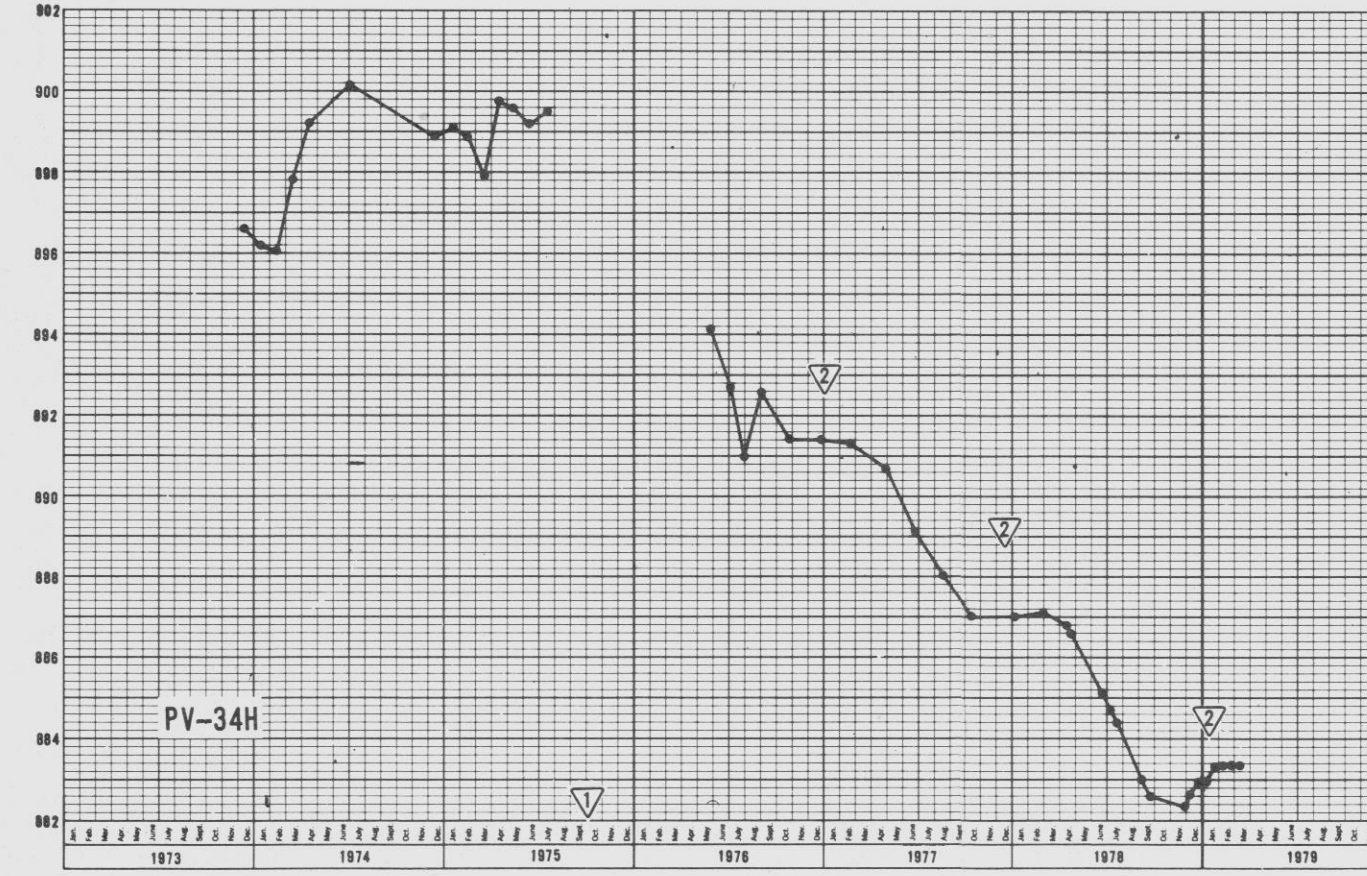
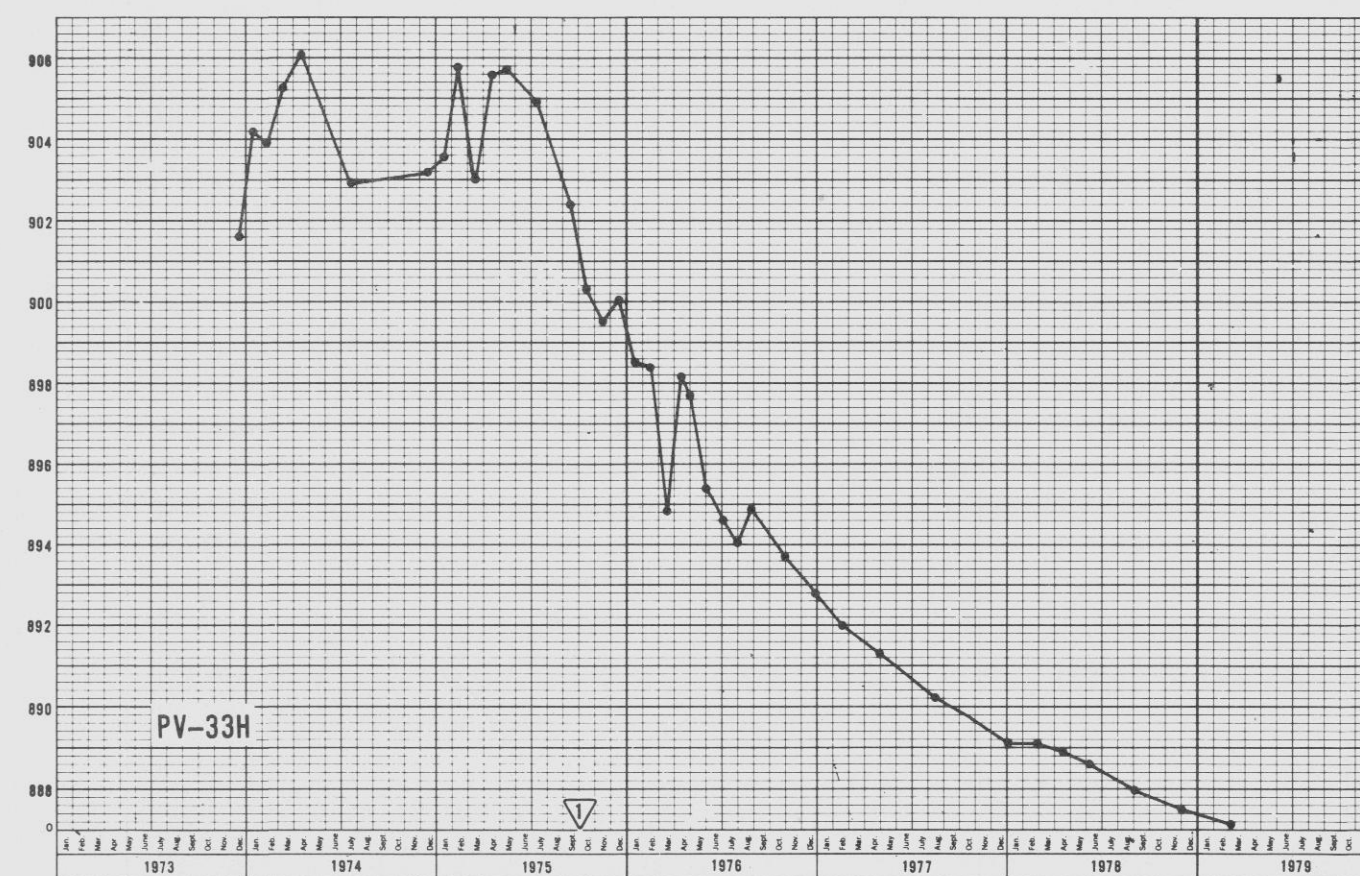
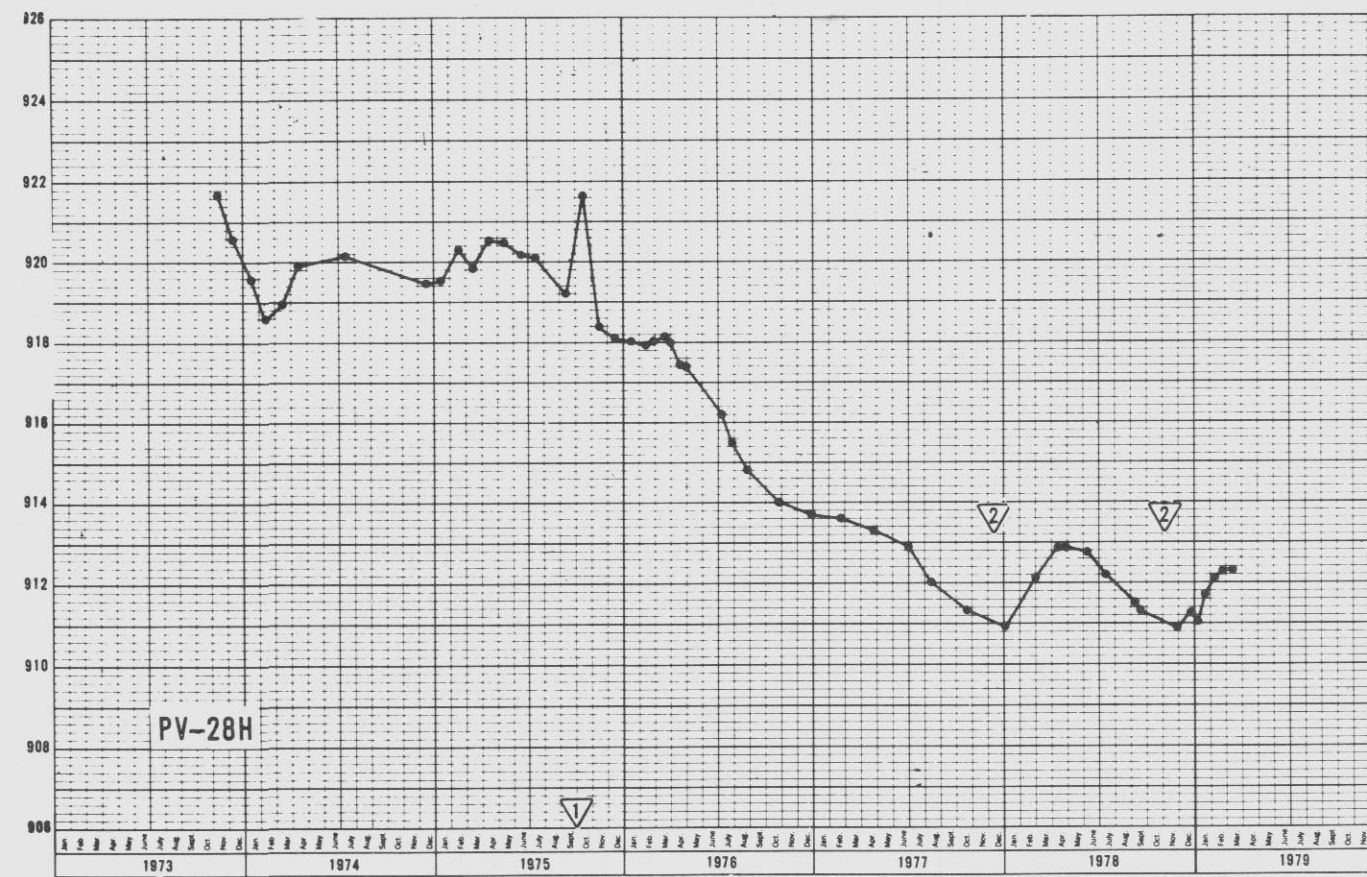
▽ IRRIGATION WELL B-1-6-34acc, LOCATED AT A DISTANCE OF 214' FROM PV-24H AND 1/2 MILE FROM PV-25H, WAS SEALED BY GROUTING IN JULY 1976. THE SUDDEN RISE IN THE MEASURED WATER LEVELS INDICATES THAT THESE WELLS WERE LOCATED WITHIN THE CONE OF DEPRESSION CAUSED BY PERCHED WATER CASCADING THROUGH THE IRRIGATION WELL.

PRC  
APERTURE  
CARD



8307290153-61





PRC  
APERTURE  
CARD

NOTES:

- ▽ ON SITE IRRIGATION CEASED SEPTEMBER, 1975.
- ▽ CYCLIC SEASONAL VARIATIONS REFLECT RECHARGE FROM SEDIMENTATION BASIN LOCATED NEAR THE CENTER OF THE SITE. ALL SURFACE RUNOFF WITHIN THE NORTHERN HALF OF THE SITE IS COLLECTED IN THE SEDIMENTATION BASIN.

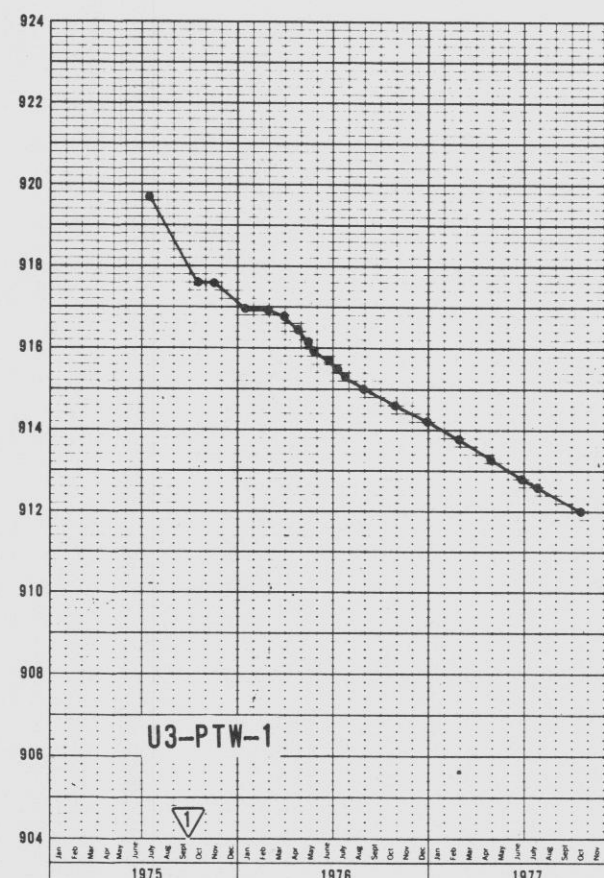
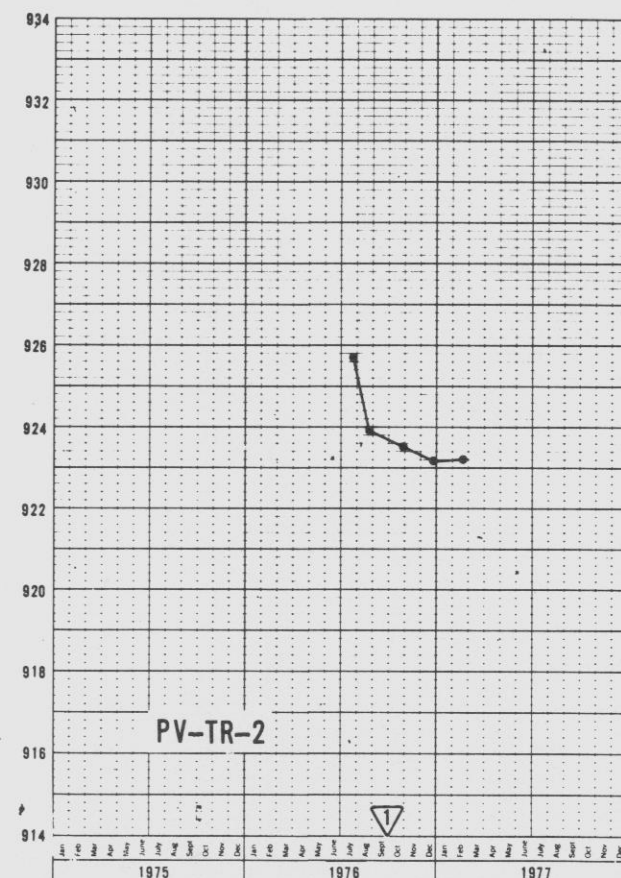
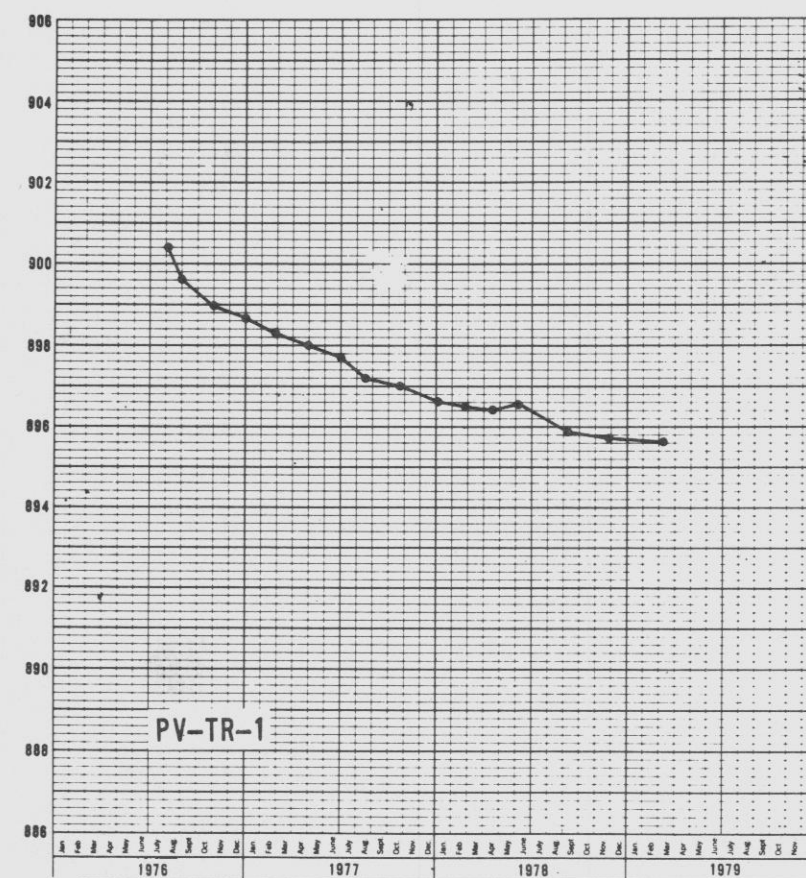
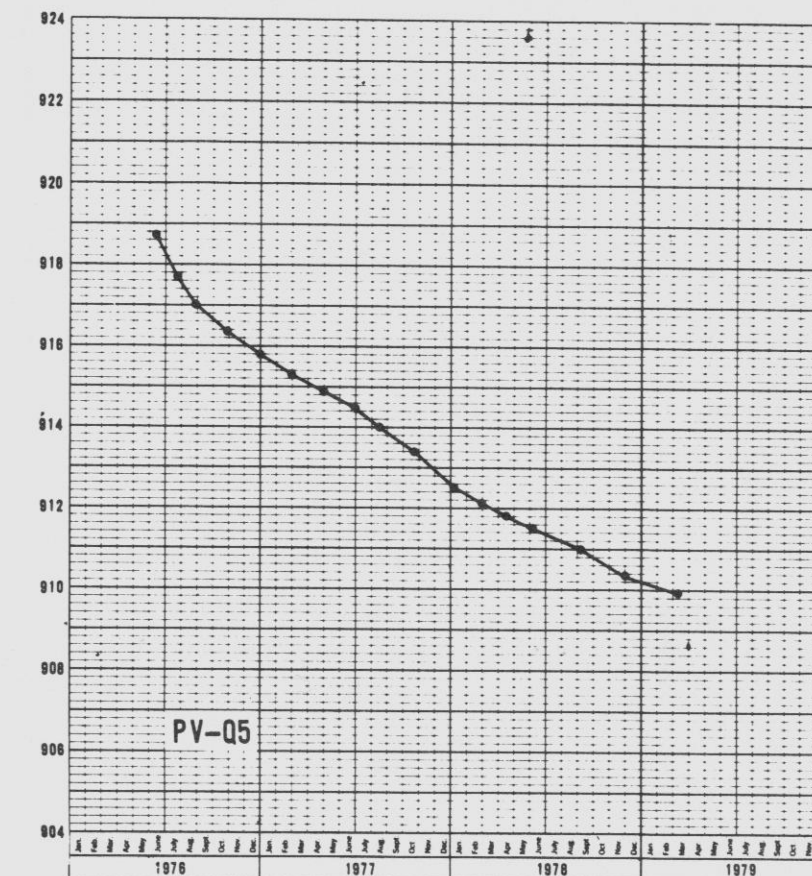
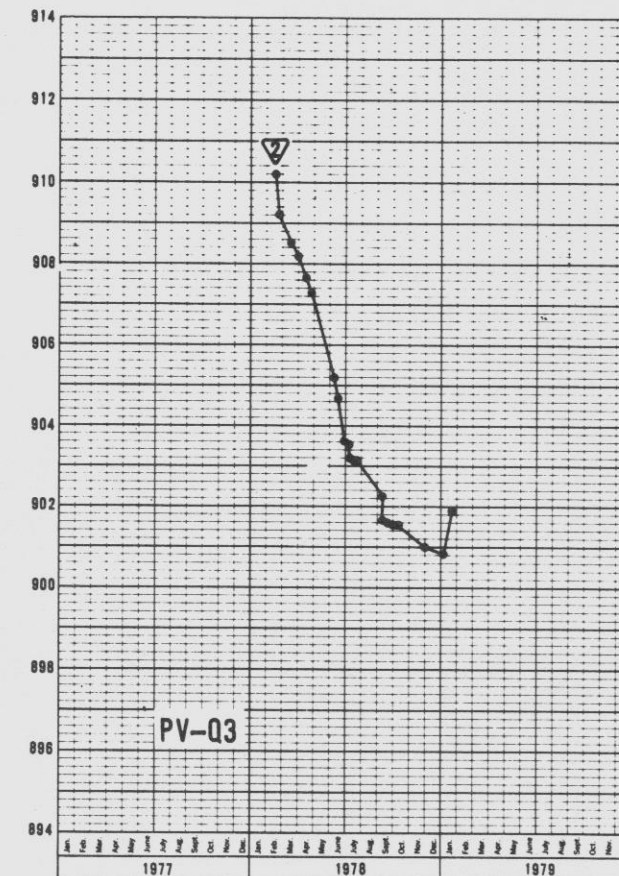
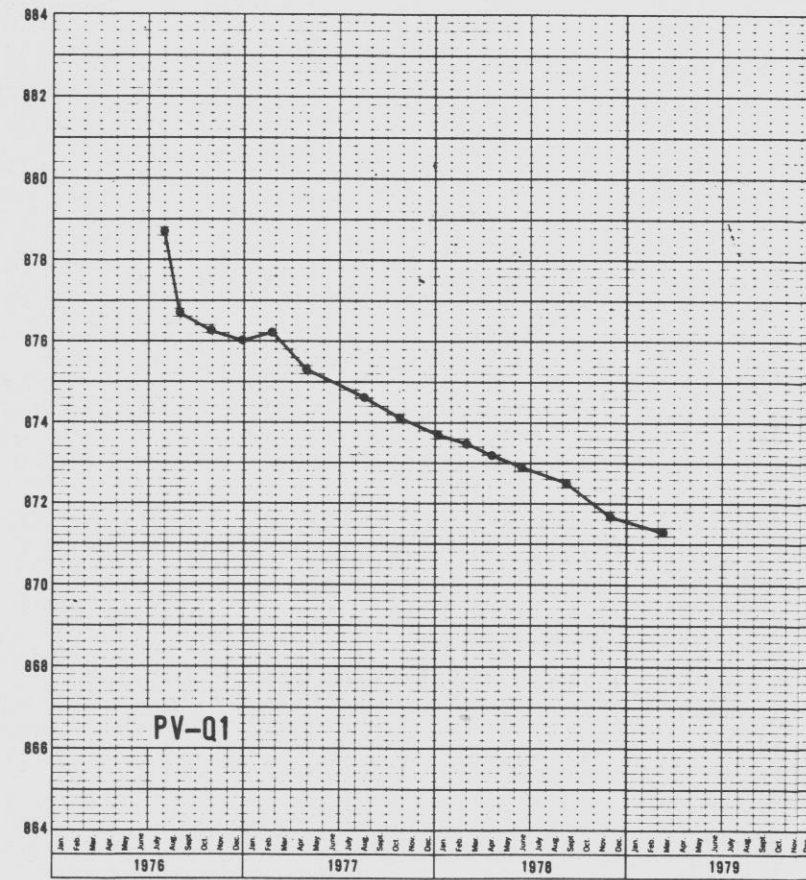
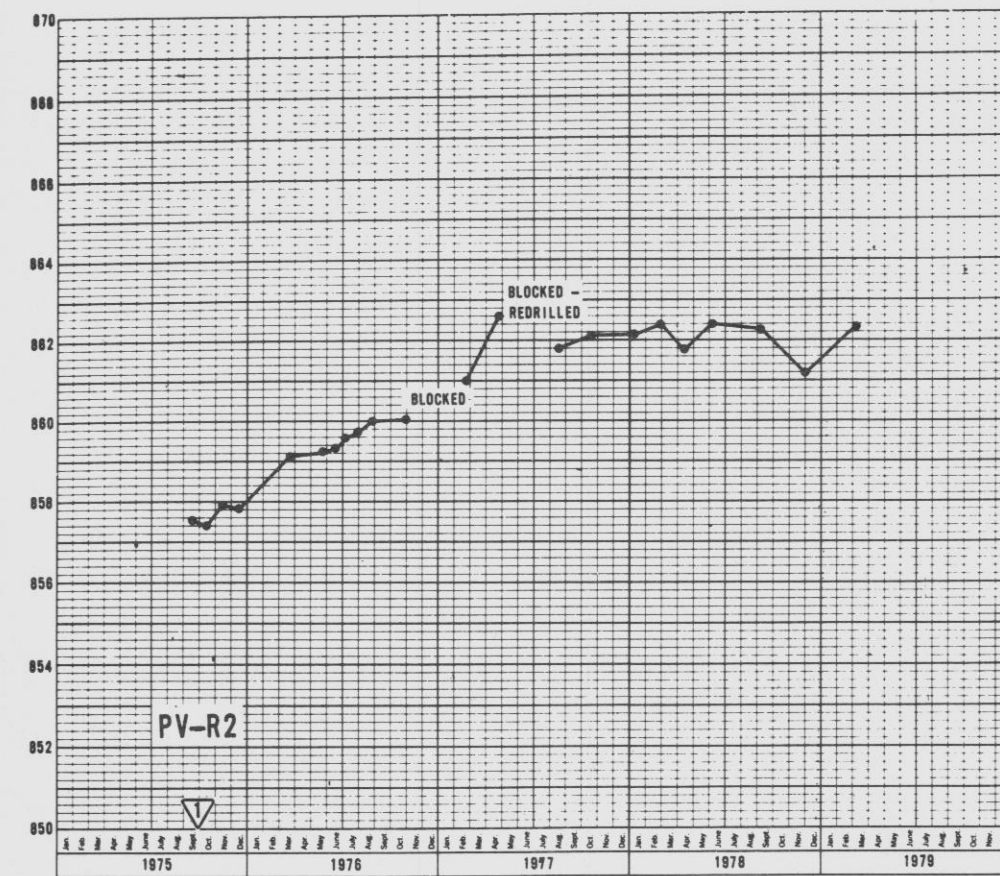
Palo Verde Nuclear Generating Station  
ER-OL

HYDROGRAPHS OF OBSERVATION WELLS  
IN THE PERCHED-WATER ZONE  
(Sheet 2 of 5)

Figure 2.4-7

8307290153-62





PRC  
APERTURE  
CARD

NOTES:

▽ ON SITE IRRIGATION CEASED SEPTEMBER, 1975.

▽ OBSERVATION WELL U3-PTW-1, LOCATED NEAR THE CENTER OF UNIT 3, WAS ABANDONED IN OCTOBER 1977 BECAUSE OF THE POWER BLOCK EXCAVATION. MONITORING OF WATER LEVELS IN THE AREA WAS CONTINUED IN WELL PV-Q3, INSTALLED AT THE EDGE OF THE EXCAVATION IN JANUARY 1978. THE STEEP DECLINE OF WATER LEVELS OBSERVED IN PV-Q3 REFLECTS THE LOCALIZED EFFECT OF DEWATERING IN THE EXCAVATION.

**Palo Verde Nuclear Generating Station**  
ER-OL

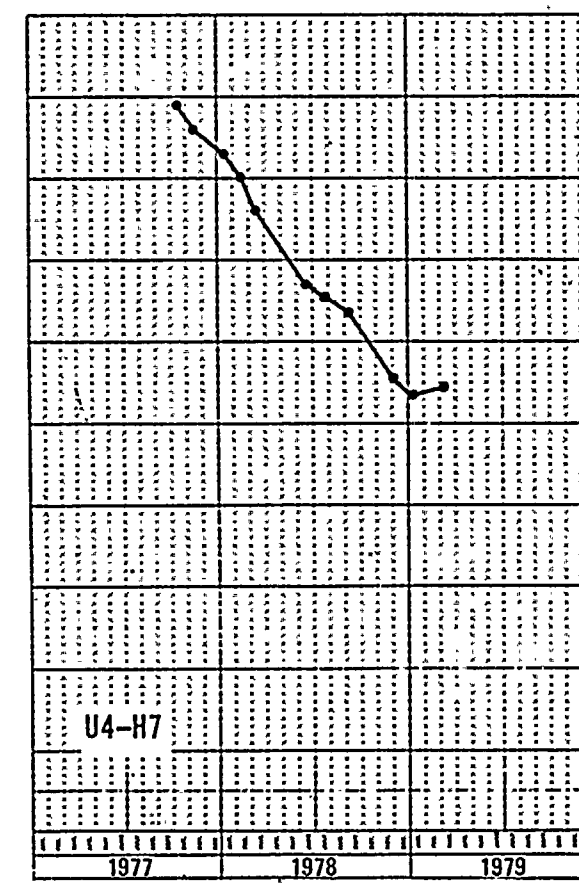
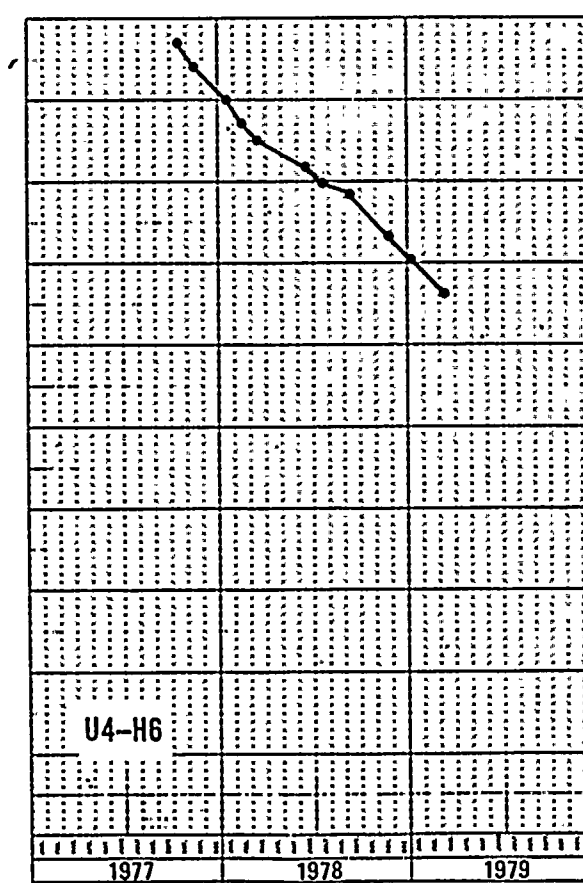
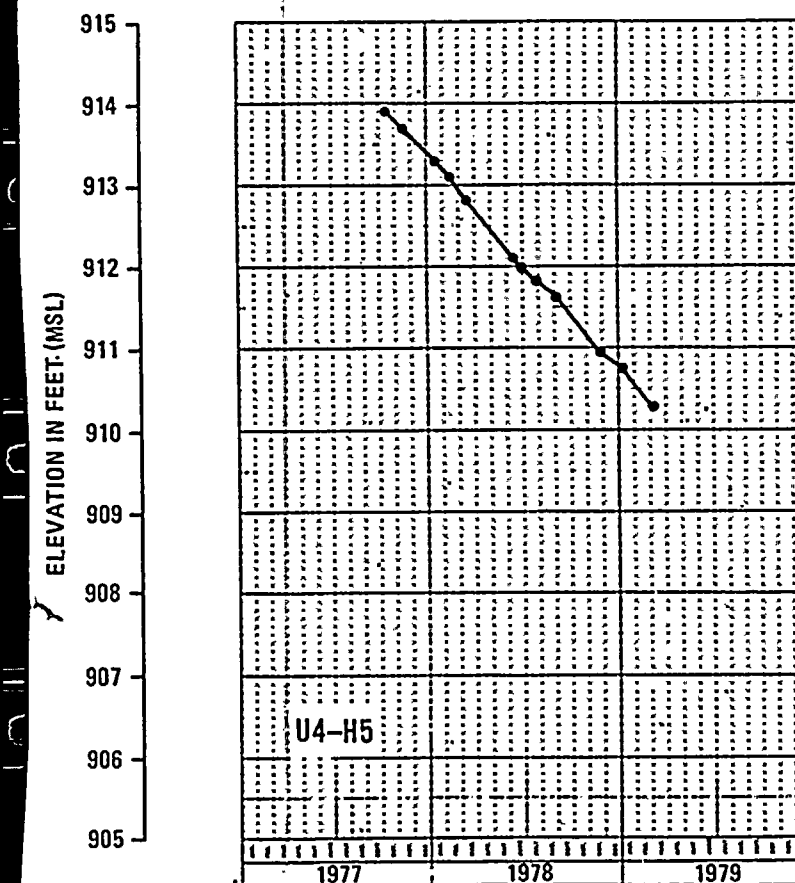
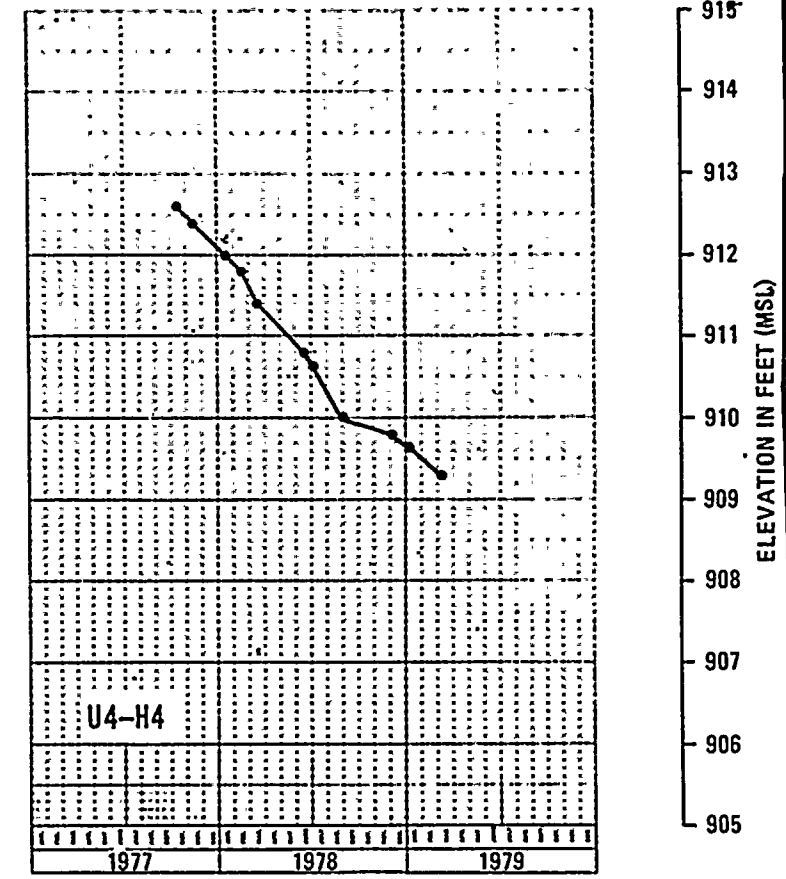
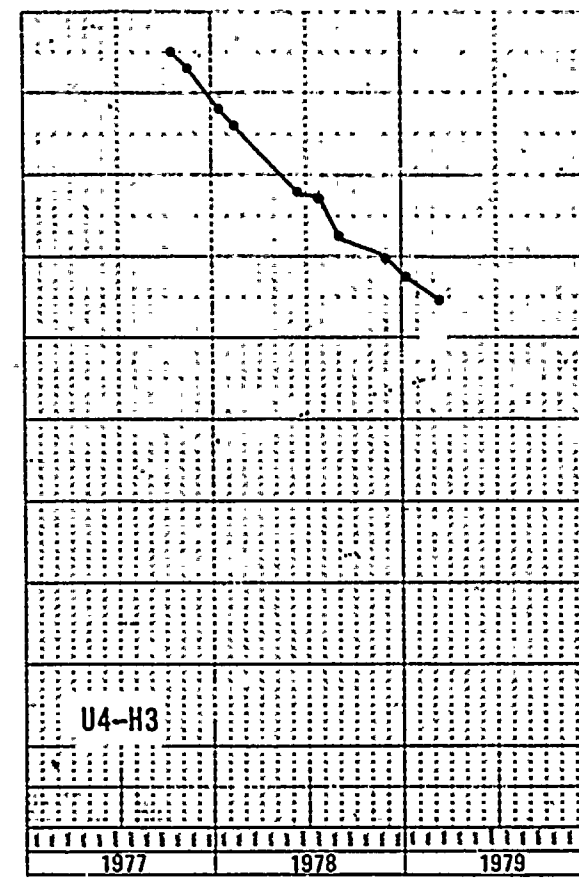
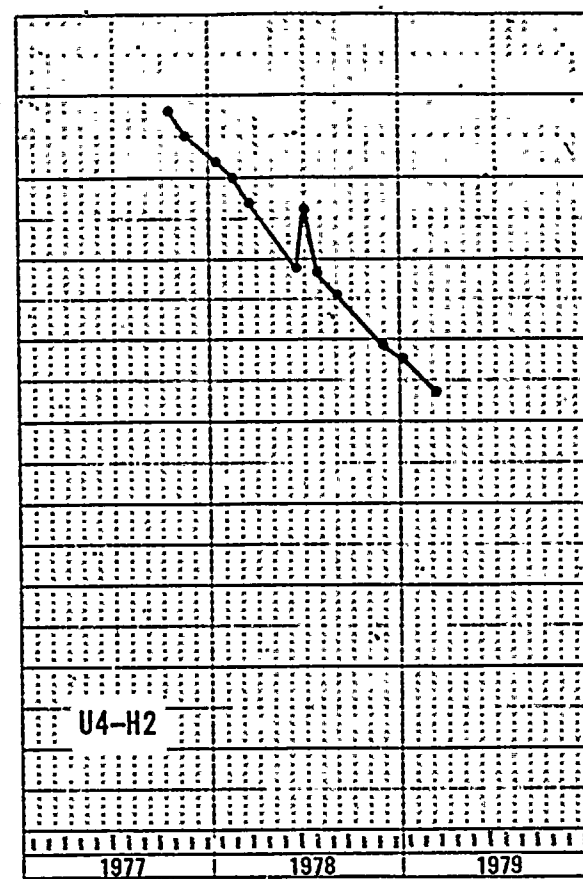
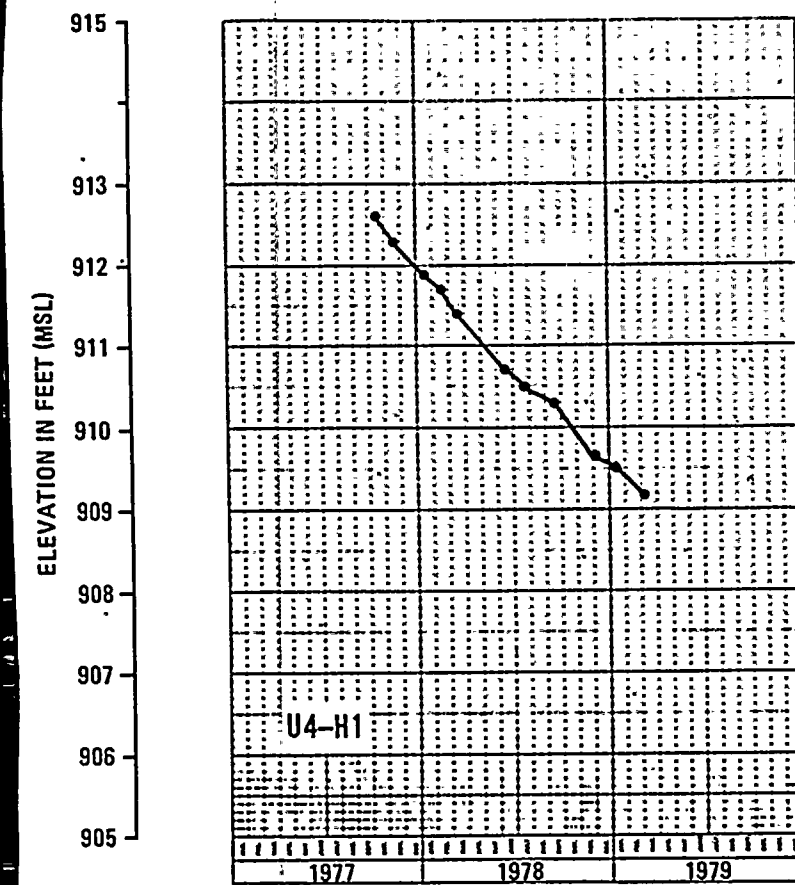
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HYDROGRAPHS OF OBSERVATION WELLS  
IN THE PERCHED-WATER ZONE  
(Sheet 3 of 5)

Figure 2.4-7

8307290153-63





ELEVATION IN FEET (MSL)

PRC  
APERTURE  
CARD

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079  
PRTRE  
DRAO

## 2.5 GEOLOGY

Geologic conditions have not changed substantially from those presented in ER-CP Section 2.4 and the FES. The following sections summarize the results of those investigations and additional investigations performed during construction. For detailed information refer to FSAR Section 2.5.

### 2.5.1 REGIONAL GEOLOGY

The site area is located on the southern edge of the Tonopah Desert in Maricopa County, Arizona (figure 2.5-1).

The site area is part of the basin and range structural province of southwestern Arizona, which is characterized by predominantly north, northwest and northeast trending mountain ranges rising abruptly from broad, plain-like basins. The basins and ranges owe their origin and alignment to late Cenozoic block-faulting and folding, superimposed on earlier structures developed during the Laramide orogeny.

The rocks of the basin and range province include metamorphic, granitic, and volcanic rocks of Precambrian, Cretaceous, and Tertiary age, and volcanic and sedimentary rocks of Pliocene and Quaternary age. The region has experienced repeated tectonism since Precambrian time. The types of deformation include folding, strike-slip faulting, and normal faulting.

### 2.5.2 SITE GEOLOGY

The rocks of the Palo Verde Hills have been divided into three parts: the Precambrian metamorphic and granitic basement rocks; Miocene volcanic and interbedded sedimentary rocks; and basin fill deposits which range in age from Miocene to Holocene. Interbeds of volcanic rocks occur locally within the basin sediments. The distribution of those units areally and in section are shown in figures 2.5-1 and 2.5-2, respectively.



The units are described in the stratigraphic chart of the site area (figure 2.5-3).

#### 2.5.2.1 Basement Rocks

Precambrian granitic and metamorphic rocks are not exposed at the ground surface but are known to exist in the subsurface from exploratory borings at depths ranging from 300 feet to 400 feet.

#### 2.5.2.2 Bedrock

Surface exposures of bedrock in the Palo Verde Hills are predominantly Miocene volcanic rocks with localized interbedded sequences of water-laid tuffs and sandstone. Potassium-argon ages on these volcanic rocks range from 17.7 to 20.3 million years.

#### 2.5.2.3 Basin Sediments

Basin sediments at the site have been divided into six stratigraphic units (see figure 2.5-3). In order of decreasing age these are the following units:

- Tertiary indurated fanglomerate (LZ-1)
- Lower silt and lower sand and gravel deposits (LZ-2)
- Palo Verde Clay (LZ-3)
- Silty clay deposit (LZ-4)
- Upper sand and gravel deposit (LZ-5)
- Younger fan deposits (LZ-6)

The average thickness of the alluvial sequence (LZ-2 through LZ-5) above the indurated fanglomerate (LZ-1) is approximately 320 feet with a variation of thickness of approximately 100 feet. The stratigraphic units within the alluvial sequence are continuous across the site and generally continuous for several miles beyond the site boundaries.

The Palo Verde Clay (LZ-3) is the most distinctive stratigraphic unit in the alluvial sequence. This unit demonstrates exceptional continuity within the site and up to 5 miles southeast and 5 miles northeast of the site.

The upper contact of unit LZ-4 is well defined throughout the site using borehole data and geologic mapping data from the Units 1, 2, and 3 powerblock excavations. In many areas of the site contact was characterized from numerous closely spaced borings.

#### 2.5.2.4 Structure

The Palo Verde Hills are a part of a regional positive structural block that includes Saddle Mountain, Gila Bend Mountains, Buckeye Hills, and the White Tank Mountains.<sup>(1)</sup>

Bedrock structure at the site includes stratification, possible minor folding, and faulting. The dominant structure of the Palo Verde Hills area is a homocline with the volcanic flow bedding dipping 15 to 40 degrees southwest (figure 2.4-1).

Detailed mapping in the Palo Verde Hills has revealed only one small fault approximately 3 miles west of the site area.

This fault displaces Miocene volcanic rocks. The fault trends beneath the Tertiary indurated fanglomerate (LZ-1) but does not displace it.

The structure of the basin sediments covering the site area was carefully analyzed to determine the tectonic history of the Palo Verde Hills area during the Pliocene and Pleistocene. The Palo Verde Clay, the most distinctive unit in the alluvial sequence, was traced continuously in closely spaced borings (<100 feet apart) in the site specific (powerblock) areas, in boring approximately 2500 feet apart across the site, 5 miles to the southeast under the Arlington basalt flow, and 5 miles to the northeast of the site (see figure 2.5-2). The

Arlington basalt has been dated by potassium-argon techniques at approximately 2 million years old. Therefore, the Palo Verde Clay is older, and has been estimated by paleomagnetic techniques to possibly be 2.8 million years old. There is no evidence of faulting or folding in the Palo Verde Clay, and no indication of any major tectonic activity in this area since at least late Pliocene time.

Ground surface deformation associated with natural or man-induced phenomena, such as the formation of salt bodies or subsidence, does not affect the PVNGS site. Subsidence or subsidence cracks due to withdrawal of groundwater during 25 years of irrigation have not been observed or reported during the investigations at the site. The site area was formerly under cultivation and irrigation through August 1975 when all agricultural activity at the PVNGS site ceased.

### 2.5.3 SEISMIC HISTORY

The site is in an area of low historic seismicity. No epicenters of earthquakes, magnitude 4 or greater, have been reported within a 65-mile radius of the site. Five epicenters of earthquakes less than magnitude 4 have occurred within about 50 miles of the site. Figure 2.5-4 presents an updated map that details recorded epicenter locations and seismic zones in the site region. Refer to FSAR Section 2.5.2.1 for a detailed description of regional seismicity.

### 2.5.4 REFERENCES

1. Sumner, J. S., and Aiken, C. L. V., "Geophysical Investigation of the Palo Verde Hills Area, Maricopa County, Arizona," Unpublished report prepared for Fugro, Inc., 1973.



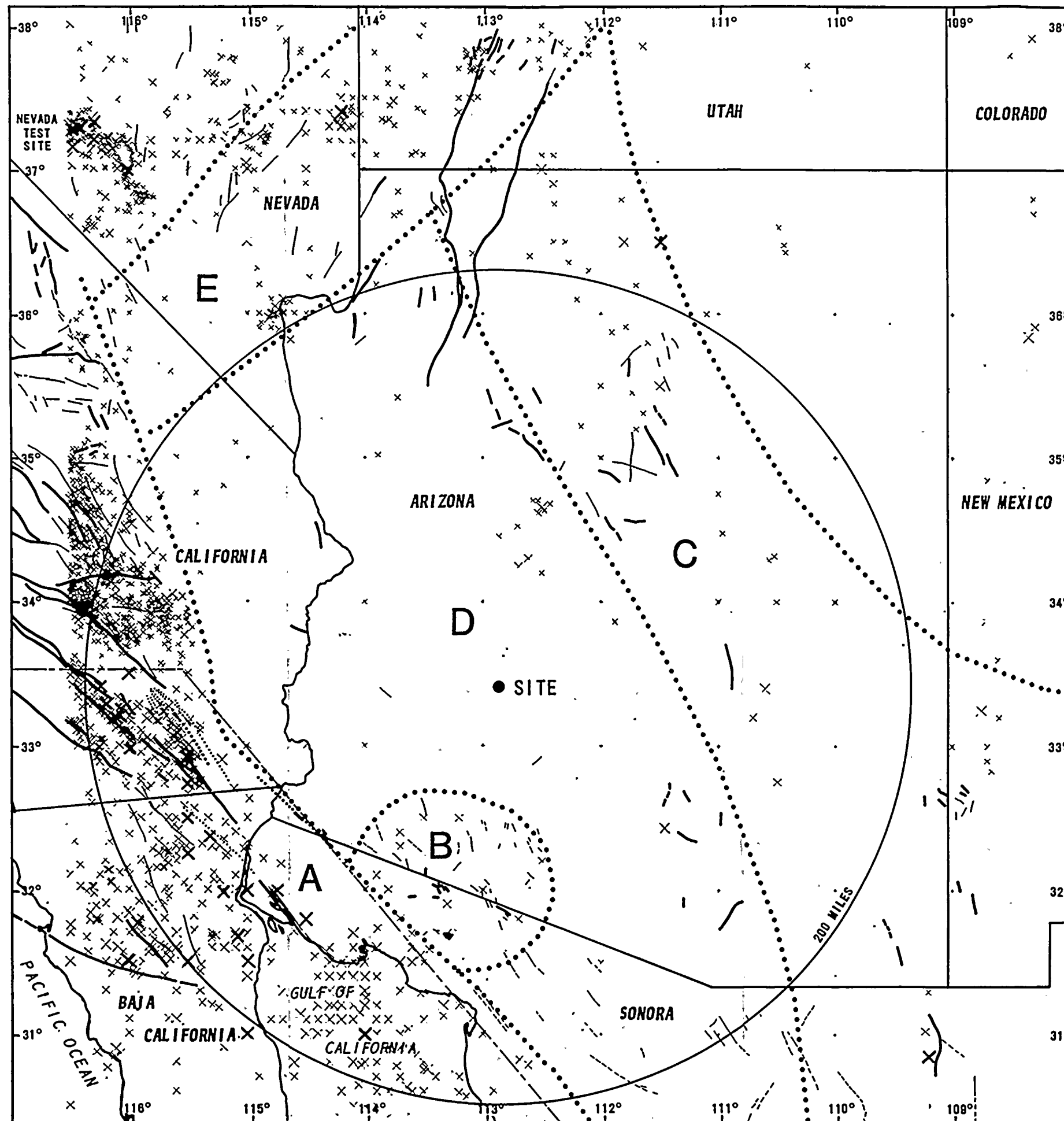
GEOLOGIC MAP SYMBOLS	LITHOLOGIC UNIT	AGE	THICKNESS	LOCATION	DESCRIPTION	LITHOLOGIC SYMBOL	MAGNETIC POLARITY	MAGNETIC ZONE	MAGNETIC TIME SCALE (Interpretation for Palo Verde area)	WORLDWIDE PALEOMAGNETIC TIME SCALE	
Qsu	LZ-6 Young Fan Deposits	Holocene-Pleistocene	8 to 15 feet	North and east of site	Brown gravel in a loose to medium dense silt and sand matrix, poorly sorted moderately stratified Volcanic, granitic, and metamorphic clasts.					<div><div>Period Epoch</div><div>Age</div><div>Event</div><div>Million of Years BP</div><div>← 0.69</div><div>← 0.87</div><div>← 0.92</div><div>Jaramillo</div><div>← 1.60</div><div>← 1.71</div><div>← 1.86</div><div>← 2.00</div><div>← 2.10</div><div>Reunion</div><div>← 2.43</div><div>← 2.82</div><div>← 2.90</div><div>← 3.00</div><div>← 3.085</div><div>Kaena</div><div>← 3.32</div><div>← 3.72</div><div>← 3.82</div><div>← 3.97</div><div>← 4.14</div><div>Nunivak</div><div>← 4.33</div><div>← 4.41</div><div>← 4.48</div><div>← 4.65</div><div>C<sub>1</sub></div><div>C<sub>2</sub></div><div>← 5.10</div></div>	
QTb	Arlington Basalt Flow	2 m.y. (Best K-Ar date)	5 to 200 feet (estimate)	Arlington	Dark gray, hard, slightly porphyritic olivine basalt.						
QTbf	LZ-5 "Upper" Sand and Gravel	> 2 m.y.	Up to 50 feet	Palo Verde basin	Brown, medium dense silty sand and gravel; predominantly quartz sand with volcanic gravel; weathered mica common; locally calcareous.			MZ-5	Matuyama Epoch		
	LZ-4 "Upper" Silt	> 2 m.y. to 2.8 m.y.	150 to 200 feet	Palo Verde basin and south and southeast toward Arlington	Brown, medium dense to dense silt and clayey silt with generally minor interbedded fine sand; scattered fine weathered mica common; local calcareous cement; coarse sand and gravel locally at base of unit. Series of paleosols developed near upper contact.			Reversal Designation R-10			
	L-10 Horizon										
	LZ-3 Palo Verde Clay	2.8 m.y. at top	20 to 136 feet	Central part of P.V. basin and south and south-east toward Arlington	Red-brown, very stiff, calcareous, silty clay; interbedded clastic wedges near west edge of basin. Paleosols developed at upper contact.			MZ-4	2.4 m.y. Gauss Epoch		
	LZ-2 "Lower" Silt	> 3 m.y.	20 to 97 feet	Central part of P.V. basin & south and southeast toward Arlington	Brown to red-brown, stiff to very stiff, sandy and clayey silt, locally grading to sand and gravel at base of unit.			MZ-3 Reversal Designation	2.8 m.y. R-8		
	"Lower" Sand & Gravel	> 3 m.y.	10 to 30 feet	Palo Verde basin	Brown, dense, silty and clayey sand and gravel of volcanic origin, poorly sorted.			MZ-2	~3.08 m.y.		
Tvfn	LZ-1 Indurated Fanglomerate	16.7 ± .3 m.y. (K-Ar date of interbedded basalt)	35 to 285 feet	Palo Verde basin	Brown, moderately to well cemented fanglomerate composed of volcanic clasts derived from underlying bedrock; local interbed of dark gray, hard basalt at boring PV-DH-33.						
Tvb Tvu Tvt	Volcanic Bedrock Sequence	17.7 to 20.3 m.y. (K-Ar dates)	6,000 to 7,000 Feet	Palo Verde Hills	Miocene volcanic sequence includes interbedded basalt, andesite and tuff, Tvb differentiated basalt, Tvu undifferentiated basalt and andesite, Tvt tuff and tuffaceous sandstone.						
Not exposed in site area	Arkosic Conglomerate	Unknown	148 Feet	Palo Verde Hills Subsurface	Arkosic conglomerate, granite andesite and basalt clasts.						
	Granitic and Metamorphic Basement	Precambrian	Unknown	Palo Verde Hills Subsurface	Granite, granitic gneiss and metamorphosed volcanic and sedimentary rocks.						

Note:  
⊕   
⊖

Palo Verde Nuclear Generating Station  
ER-OL

STRATIGRAPHIC CHART OF SITE AREA  
Figure 2.5-3





# EXPLANATION

- x M < 4.0
- × 4.0 ≤ M < 5.0
- × 5.0 ≤ M < 6.0
- × 6.0 ≤ M

EPICENTERS FROM USGS WORLDWIDE CATALOG OF EARTHQUAKES, NATIONAL GEOPHYSICAL AND SOLAR-TERRESTIAL DATA CENTER. COVERAGE FOR THIS AREA IS 1852-1977.

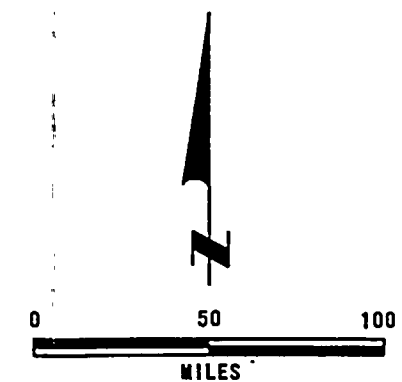
..... SEISMIC ZONE BOUNDARIES

—— CAPABLE FAULTS - LESS THAN 500,000 YEARS OLD

—— QUATERNARY FAULTS - 500,000 YEARS TO ABOUT 1.8 MILLION YEARS OLD

—— ONLY EARTHQUAKES WITH M ≥ 4 SHOWN SOUTHWEST OF THIS LINE

NOTE: SEE FIGURE 2.5-8 FOR SOURCES OF FAULT DATA



**Palo Verde Nuclear Generating Station**

**ER-OL**

REGIONAL EPICENTER MAP

Figure 2.5-4





## 2.6 REGIONAL HISTORIC, ARCHAEOLOGICAL, ARCHITECTURAL, SCENIC, CULTURAL, AND NATURAL FEATURES

The environmental baseline descriptions of regional features in connection with PVNGS are as described in ER-CP Section 2.3 and the FES. This information is summarized and updated in this section to reflect changes in transmission line routing and the mitigation of archaeological finds at the PVNGS site and along the wastewater conveyance pipeline route.

### 2.6.1 PVNGS SITE

There are 13 archaeological sites located within or near the boundaries of the plant site. Those sites located within the plant site boundaries have been affected by the construction of Units 1,2&3. The following steps have been taken as means of preservation:

- Excavation of known archaeological sites
- Investigation for potential sites
- Mapping and analyses of trail networks and their interrelationships.

Where artifacts and evidences of archaeological significance have been found, they have been preserved and analyzed to the satisfaction of the State Historical Preservation Officer.<sup>(1)</sup> Hence, the archaeological heritage of the site has been established and preserved.

Review of the National Register of Historic Places and consultation with the Museum of Northern Arizona, the Arizona Department of Library and Archives, the Arizona State University Hayden Library, and the State Historic Preservation Officer indicates that there are no register historic properties located on or near the site.

PVNGS ER-OL  
REGIONAL HISTORIC, ARCHAEOLOGICAL,  
ARCHITECTURAL, SCENIC, CULTURAL,  
AND NATURAL FEATURES

Review of the National Registry of Natural Landmarks and consultation with the State Parks Director and the State Historic Preservation Officer indicate that there are no natural areas located on or near the plant site.

No architectural, scenic, or cultural features have been identified within or near the boundaries of the PVNGS site.

#### 2.6.2 TRANSMISSION ROUTES

The transmission system associated with PVNGS is described in section 3.9.1. Information presented in ER-CP Section 2.6 and the FES has been updated to reflect final line routings and the addition of a transmission line from PVNGS to Devers Substation in California. The expected impacts of Project 1 and 3 transmission systems are updated and summarized in this section.

Information concerning the PVNGS to Devers line is contained in the U.S. Department of Interior Bureau of Land Management and U.S. Nuclear Regulatory Commission Final Environmental Statement, Palo Verde-Devers 500 kV Transmission Line, February, 1979. Descriptions are presented for preferred and alternate routes.

##### 2.6.2.1 Project 1

The Project 1 transmission line routes described in section 3.9.1 traverse several zones of ancient culture occupation associated with the Hohokam and Cochise traditions. Surveyed sites within these areas are associated with the Hohokam, although other cultures might be represented. Most identified sites are small seasonal gathering sites.

The State Historic Preservation Officer (SHPO) has approved the plan for protection of sites along the PVNGS to Westing Line.<sup>(2)</sup> The plan for protection of sites along the PVNGS to Kyrene line has been submitted for approval of the SHPO.



The proposed transmission line routes will cross three areas of scenic quality: (1) Rainbow Valley; (2) an area east of Table Top Mountains; and (3) an area west of Sawtooth Mountains.

There are no architectural, natural, or historic properties located on or near the proposed transmission line routes.

#### 2.6.2.2 Project 3

A survey of most of the Project 3 transmission line route by the New Mexico Environmental Institute discovered some sites of archaeological interest. However, none were "visibly spectacular nor sufficiently important to justify the establishment of a state or federal monument for their preservation and exhibition."<sup>(3)</sup> The survey did not constitute an archaeological clearance of the route but did identify that there are no known or recognizable sites of archaeological significance along the route.

The proposed transmission line route will follow for the most part existing utility corridors through isolated desert, grazing, and agricultural land. It is expected that scenic features will be minimally impacted as a result of the construction and operation of the project.

There are no architectural, natural, or historic properties located on or near the proposed transmission line route.

#### 2.6.3 WASTEWATER CONVEYANCE SYSTEM

A number of prehistoric archaeological sites are located near the right-of-way. Sites located close to the right-of-way have been mitigated using measures similar to the ones described in section 2.6.2. The State Historic Preservation Officer has approved the plan for protection of sites along the pipeline.<sup>(4)</sup> Where artifacts and evidences of archaeological significance have been found, they have been preserved and analyzed. Hence, there has been a significant positive impact upon the

PVNGS ER-OL  
REGIONAL HISTORIC, ARCHAEOLOGICAL,  
ARCHITECTURAL, SCENIC, CULTURAL,  
AND NATURAL FEATURES

archaeologic features as a result of the extensive mitigation approved and executed for the construction and operation of the project.

Review of the National Register of Historic Places and consultation with the Museum of Northern Arizona, the Arizona Department of Library and Archives, the Arizona State University Hayden Library, and the State Historic Preservation Officer indicate that there are no registered historic properties located on or near the pipeline right-of-way.

Review of the National Register of Natural Landmarks and consultation with the Arizona State Parks Director and the State Historical Preservation Officer indicate that there are no natural areas located on or near the right-of-way.

There are no architectural scenic, or cultural properties located on or near the right-of-way.

#### 2.6.4 REFERENCES

1. Letter dated May 18, 1976 from Dorothy Hall, Arizona State Historical Preservation Officer (SHPO) to Dr. Robert A. Gilbert, Project Manager, Environmental Projects, Branch 3, U.S. Nuclear Regulatory Commission.
2. Letter dated September 21, 1978 from Dorothy Hall, Arizona SHPO to Bob Buffington, State Director, Bureau of Land Management.
3. Environmental Impact Study of Proposed 345 kV Power Transmission Line Corridors from Dona Ana County, New Mexico to Greenlee County, Arizona, prepared for the El Paso Electric Company, prepared by the New Mexico Environmental Institute, Las Cruces, New Mexico, January 1974.
4. Letter dated August 9, 1977 from Dorothy Hall, Arizona SHPO to Dr. Robert A. Gilbert, U.S. Nuclear Regulatory Commission.

## 2.7 NOISE

Ambient noise levels in the vicinity of the site were measured prior to construction and presented in ER-CP Section 2.9.  $L_{50}$  sound levels at 10 sampling points varied from 17 to 66 dBA with an overall average of 34 dBA. Daytime, evening, and nighttime sound levels are shown in figures 2.7-1 through 2.7-3. Preconstruction noise survey methodology is described in section 6.1.

The noise sensitive land uses in the vicinity of the plant site are residences. Distances from major noise sources to nearby residences are indicated in table 2.7-1. There are no institutions or wildlife preserves in the vicinity of the plant site.

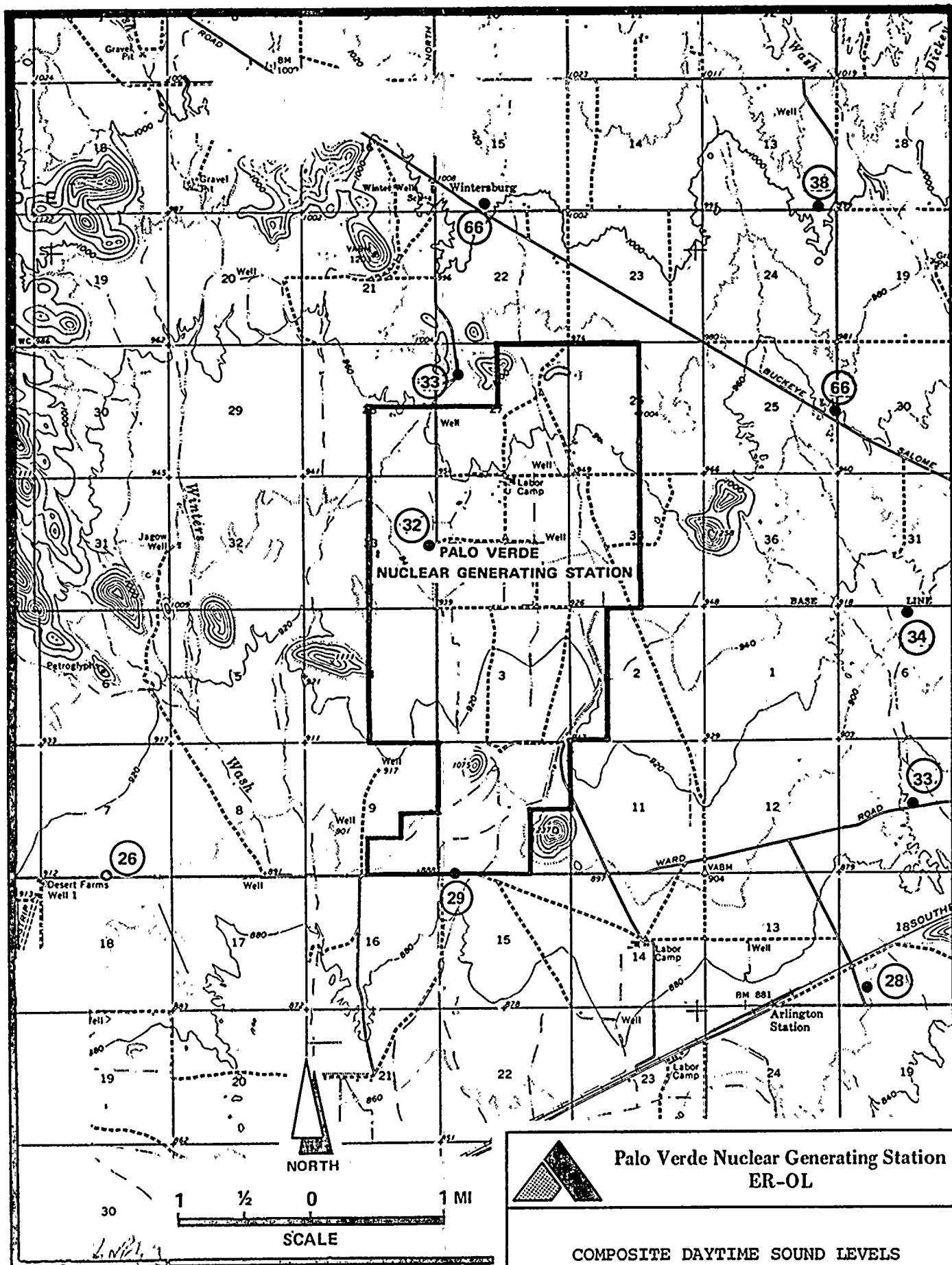
There are few terrain features and little significant ground cover in the vicinity of the site which would have significant effect on propagation of sound from the plant. Most of the vegetation in the area lies along drainage gullies and would provide little attenuation of sound. The terrain in the vicinity of the site is generally flat, sloping gently to the south, and interrupted occasionally by rock formations that vary in height from 20 to 100 feet. The only features of potential significance for sound attenuation are those immediately to the north of the site and to the east of the site. Due to the distance of these barriers from the plant noise sources and the limited width of these features, little attenuation of sound at the residences in these directions is anticipated.



Table 2.7-1

DISTANCES TO NEAREST RESIDENCES WITHIN  
FIVE MILES OF MAJOR NOISE SOURCES

Direction	Distance from Source Location (Miles)			
	Nearest Cooling Tower	Nearest Unit	Transformer (Switchboard)	Reclamation Water Pumps
N	1.2	1.4	1.8	0.9
NNE	1.7	1.8	2.1	1.2
NE	1.8	1.9	2.1	1.3
ENE	2.7	2.7	2.7	2.4
E	3.3	3.2	3.0	3.1
ESE	3.7	3.5	3.2	3.6
SE	-	-	-	-
SSE	4.0	3.9	3.6	4.5
S	3.7	3.7	3.7	4.7
SSW	2.9	2.9	3.2	4.1
SW	3.6	3.7	4.0	4.8
WSW	-	-	-	-
W	-	-	-	-
WNW	-	-	-	-
NW	2.0	2.3	2.6	2.1
NNW	2.2	2.4	2.8	2.0



LEGEND:

(32) REPRESENTS  $L_{50}$  OF 32dBA



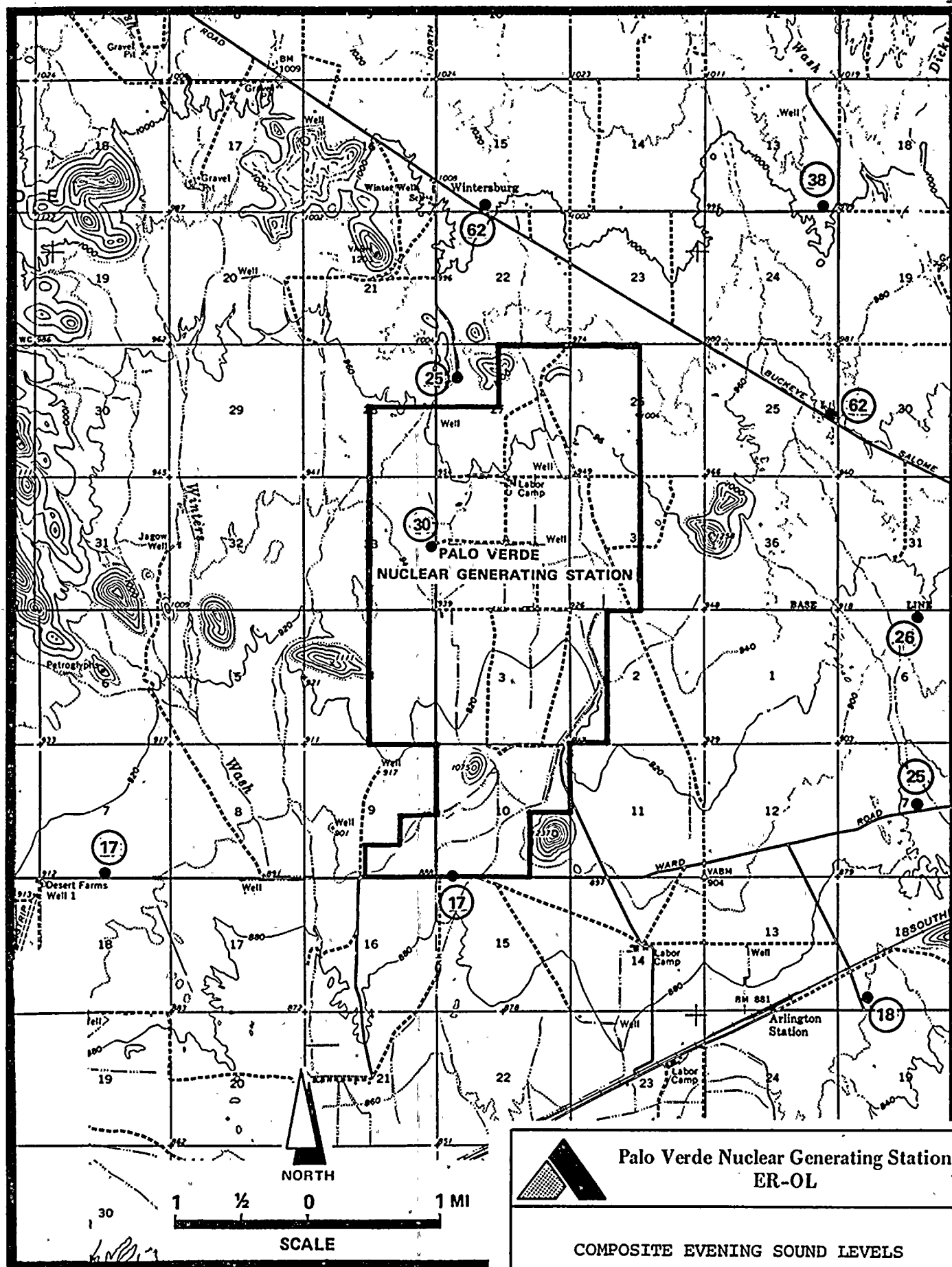
Palo Verde Nuclear Generating Station  
ER-OL

COMPOSITE DAYTIME SOUND LEVELS


Figure 2.7-1







LEGEND:  
 (30) REPRESENTS  $L_{50}$  OF 30dBA



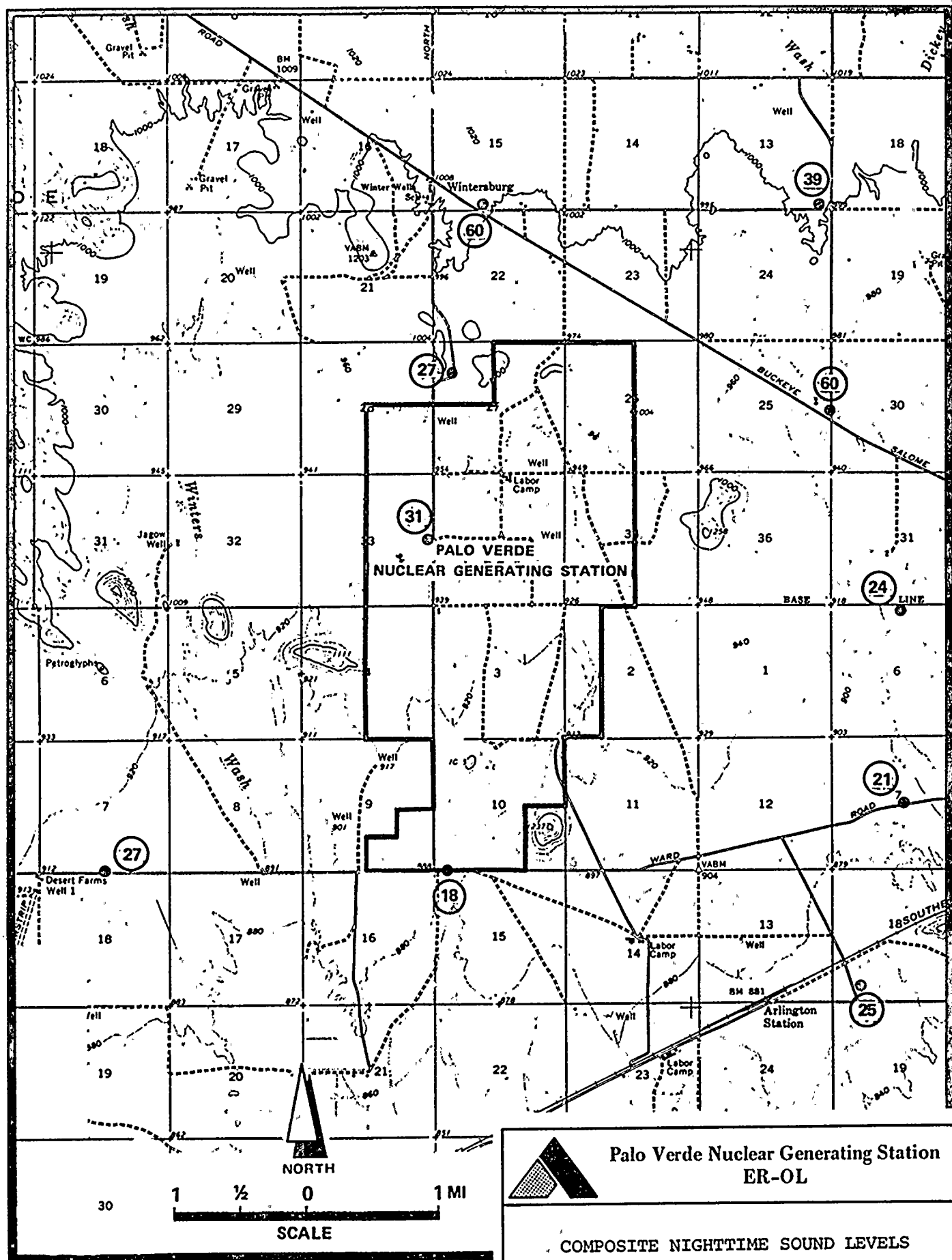
**Palo Verde Nuclear Generating Station**

**ER-OL**

COMPOSITE EVENING SOUND LEVELS

Figure 2.7-2





LEGEND:

(31) REPRESENTS L<sub>50</sub> OF 31dBA



Palo Verde Nuclear Generating Station  
ER-OL

COMPOSITE NIGHTTIME SOUND LEVELS

Figure 2.7-3





PVNGS ER-OL

APPENDIX 2A

RESPONSES TO NRC QUESTIONS

100-100000

100-100000  
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100-100000



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QUESTION 2A.1 (NRC comment on section 2.1.2.3) (6/18/80) 2.1.2.3  
School children should be included in table 2.1-3.

RESPONSE: The response is given in revised section 2.1.2.3 and table 2.1-3.

QUESTION 2A.2 (NRC comment on section 2.3) (6/18/80) 2.3  
Meteorological data should include most recent one-year period (11/78-11/79).

RESPONSE: Meteorological data have been continuously collected at the PVNGS site since August 13, 1973. As a result, August 13 has become the anniversary date for annual meteorological reporting. In the preparation of the PVNGS FSAR and the PVNGS ER-OL, the latest documented annual meteorological data available in conjunction with the submittal schedules of these documents covered the period August 13, 1977 to August 13, 1978. This period represented the fifth consecutive year of meteorological monitoring at PVNGS and a detailed report covering the five year period from August 13, 1973 to August 13, 1978 was prepared.

These five years of meteorological data became the data base for the diffusion calculations used to assess the radiological consequences of plant operation in normal and postulated accident conditions. Areas of the FSAR and ER-OL affected by these calculations include:

- 1) Short term (accident) and long term (routine) diffusion estimates ( $\chi/Q$ 's) (FSAR section 2.3 and ER-OL section 2.3)
- 2) Environmental assessment of the radiological impact from normal operation (ER-OL section 5.2)



- 3) Evaluation of compliance with 10 CFR 50, Appendix I and 40 CFR 190 (ER-OL Appendix 5B)
- 4) Environmental effects of accidents (ER-OL section 7.1)
- 5) Design basis accident consequences (FSAR Chapter 15)
- 6) PVNGS Emergency Plan

This data base was also used to assess the air quality impacts of cooling tower operation (ER-OL section 5.4).

The use of these five years of meteorological data (the latest available 5 years of data when the FSAR and ER-OL were being prepared) provides a superior basis for the above calculations than two annual cycles of data required by Regulatory Guides 1.70 Rev. 3 or 4.2 Rev. 2. This position is supported by the considerable increase in statistical significance afforded by the use of a five year base, since it provides a much more representative view of the long term climatology of the site region. It is considered that the use of a 5 year data base exceeds the intent of both Regulatory Guides 1.70 Rev. 3 and 4.2, Rev. 2.

Subsequent to submittal of the FSAR and ER-OL, meteorological for the latest available year (August 13, 1978 to August 13, 1979) were analyzed. Dispersion factors calculated from this data are comparable to those calculated for the five prior years as presented in the FSAR and ER-OL. In addition average values of climatic parameters during this period are comparable to the five prior years.

For these reasons, we request the NRC reconsider the request for revised meteorological data.

QUESTION 2A.3 (NRC comment on section 2.3) (6/18/80) 2.3

No monthly mixing height data.

RESPONSE: The seasonal mixing height data provided in ER-OL section 2.3.1.2.7 are adequate to represent the mixing heights of the region. These data are the same as that provided in the Environmental Report - Construction Permit Stage (ER-CP) for Units 1-3 and the ER-CP for Units 4-5. In all dispersion calculations  $\sigma_z$  was constrained to values less than 1000 meters. This is consistent with average afternoon mixing heights for all seasons. Therefore, dispersion calculations implicitly account for mixing heights appropriate to the PVNGS climatic regime, regardless of whether monthly or seasonal data is used.

QUESTION 2A.4 (NRC No. 291.15)

2.7

Provide a discussion of noise sensitive land uses in the vicinity of the plant site. The discussion should describe the type of land use (e.g., hospital, cemetery, school, residence, wildlife management area), and its location and distance from plant noise sources such as cooling towers, circulating water pumps, plant transformers, switchyard, steam vent locations and outdoor paging systems.

RESPONSE: The response is provided in the revised section 2.7.

QUESTION 2A.5 (NRC No. 291.16)

2.7

Provide a discussion of all significant barriers (natural or otherwise) to noise propagation and ground cover (such as groves of trees and other vegetation) that could possibly affect sound propagation to offsite areas. Indicate their location; extent, elevation, proximity to noise sources and noise sensitive land uses, and estimate their effect on noise propagation offsite.

RESPONSE: The response is provided in the revised section 2.7.

QUESTION 2A.6 (NRC No. 310.3)

2.1.2

Based upon available 1980 preliminary census counts, locate on a map all population centers within a 50-mile radius of PVNGS, including all towns, cities, and unincorporated communities. Update of tables 2.2-1 and 2.2-2 in the CP-ER would be appropriate.

RESPONSE: The response is provided in the revised section 2.1.2.

QUESTION 2A.7 (NRC No. 310.4)

2.1.2

Provide updated zoning and current and future land use plans for the 0-50 mile radius from the site, including Maricopa County and the Phoenix area.

RESPONSE: Four counties are included in a 50-mile radius of the PVNGS: Maricopa, Pinal, Yuma, and Yauapai. Zoning maps are available for Maricopa County, including the City of Phoenix, and Pinal and Yuma Counties, but not for Yauapai County. Current and future land use plans are available for Maricopa County, including the City of Phoenix, and Yauapai County, but not for Pinal and Yuma Counties. The



following items will be sent under separate cover in fulfillment of this request:

Zoning Information

1. Maricopa County, Unincorporated Area, Zoning District Maps, various dates.
2. City of Phoenix Zoning Maps, various dates.
3. Pinal County Zoning Map, including Hidden Valley area inset, May 13, 1968.
4. Yuma County Zoning Maps (Area No. 4).

Current and Future Land Use Plans

1. Maricopa Association of Governments, Transportation and Planning Office: Guide for Regional Development and Transportation, July 23, 1980.
2. Maricopa County Planning and Zoning Department, Westcentral Maricopa County, Arizona Plan, October 1971.
3. City of Phoenix, Arizona, Phoenix Concept Plan 2000: A Program for Planning.
4. City of Phoenix, Arizona, Interim 1985 Plan.
5. Northern Arizona Council of Governments, "Regional Comprehensive Plan" and "Existing Population/Land Use" (Yavapai County).

QUESTION 2A.8 (NRC No. 310.5)

2.1.2

Explain the method by which the 5-50 mile radius population figures in Section 2.1.2.1 were calculated.

RESPONSE: The 5-50 mile radius population figures were calculated in the same manner as the 5-10 mile radius population figures, as noted in sections 2.1.2.1 and 2.1.2.2.

QUESTION 2A.9 (NRC No. 310.6)

2.1.3

In addition to traffic counts provided in the OL-ER Table 2.1-4, please provide traffic counts on the following roads:

355th Avenue

Elliot (Ward) Road

339th Avenue

Van Buren Street

Wintersburg road heading south from the site, and

U.S. Highway approaches (I-10).

Identify any places where traffic congestion or problems of interference with patterns of local and pedestrian traffic might be anticipated.

RESPONSE: The response is provided in the revised section 2.1.3.1.6.

QUESTION 2A.10 (NRC No. 311.1)

2.1

A number of discrepancies between information supplied in the PSAR vs. the FSAR have been noted regarding information concerning the site vicinity. Examples of such discrepancies are as follows:

- (a) The CP lists the PVNGS site as being 15 miles west of Buckeye and 36 miles west of Phoenix, whereas the FSAR lists these distances as 16 and 34 miles, respectively.
- (b) The PSAR lists the elevation of the northern site boundary as 975 feet MSL, whereas the FSAR indicates 1030 feet MSL.
- (c) There are some differences between the PSAR and FSAR in the distances and even some directions of the towns and communities listed.

- (d) There is considerable difference in the population distribution shown on the charts in the CP and OL submittals. The distribution in certain sectors is confusing. Following is an example of some of the obvious population shifts noted in 6 of the sectors.

	40 - 50		30 - 40		20 - 30		0 - 5	
	N	NNE	ESE	SE	SE	SSE	NW	NNW
CP-1970	0	2698					125	0
OL-1978	3397	358					0	174
CP-1980	0	4261	955	0	534	0	197	0
OL-1980	3623	381	0	916	0	502	0	186
CP-1990	0	6291	1439	0	788	0	291	0
OL-1990	4621	187	0	1168	0	640	0	237
CP-2000	0	8682	1986	0	1088	0	402	0
OL-2000	5935	625	0	1500	0	822	0	304
CP-2010	0	11983	2741	0	1501	0	555	0
OL-2010	7622	803	0	1927	0	1055	0	390

The above data is representative but does not include all of the questionable population numbers noted throughout the document.

Please resolve these discrepancies and amend the FSAR, as appropriate.

RESPONSE: A review of the data presented in the PVNGS FSAR indicates that the statistics stand as correct and should be used as the basis for evaluation of environmental impacts. The difference in the data reflects refinement of the population modeling methodology since the PSAR.



QUESTION 2A.11 (NRC No. 311.2)

2.1.3

The population for the year 2030, for the cities of Avondale and Goodyear has a higher residential population than the sector (E) in which these cities are located. Please resolve this discrepancy. Also, explain how the population projections for the entire 30 mile radius around the site can be lower than either of the above (Section 2.1.3.6).

RESPONSE: The reason for these apparent discrepancies can be explained as a function of the methodology employed in preparing the population distribution projections. As noted in sections 2.1.2.1 and 2.1.2.2, 1978 population distributions are based on the location of U.S. Bureau of the Census - defined population centroids relative to PVNGS.

QUESTION 2A.12 (NRC No. 311.3)

2.1.3

2 Sun City has been designated as the nearest population center as defined by 10 CFR Part 100. However, since the projected population for the cities of Avondale and Goodyear, which are closer to the site than Sun City, is expected to reach 25,000 prior to the end of plant life, please amend your application accordingly by designating Avondale/Goodyear as the nearest population center.

RESPONSE: FSAR section 2.1.3.5 identifies two sets of nearest population centers for differing time periods. Sun City for the period 1978 to 1995; and Avondale and Goodyear for the period 1995 to 2030. Since the latter designation is based on projections only, it appears preferable to leave these designations as such in order to clarify the reasons for designating Sun City as the nearest population center.

QUESTION 2A.13 (NRC No. 311.4)

2.2.2

Southern Pacific Pipelines is "currently studying the feasibility of installing a pipeline parallel to the existing pipeline" which is 4.5 miles from Unit 2. There is no indication as to whether the new pipeline will be closer to the site, or exactly where it will be located. Please discuss the proposed location more fully and provide all pertinent additional information regarding this pipeline.

RESPONSE: Southern Pacific Pipelines does not now plan to construct a second pipeline parallel to the existing line for transport of refined petroleum products<sup>(a)</sup>. Section 2.1.3.1.6.4 has been revised accordingly.

- a. McDaniel, R. R., Manager, Engineering, Southern Pacific Pipelines, Inc., telephone conversation with Higman, S. L., NUS Corporation, February 20, 1981.

QUESTION 2A.14 (NRC No. 311.5)

2.2.2

Provide more information on the current status of the proposed energy research park and petroleum refinery mentioned in the FSAR.

RESPONSE: FSAR Section 2.2.2.4, Projections of Industrial Growth, includes a brief discussion of a tentatively proposed energy research park and petroleum refinery to be located within a 20-mile radius of PVNGS. A preliminary report and plan was submitted by the project developers to the Maricopa County Planning Department in June, 1977 for information only. No further action had been taken by either parties, i.e., the developer or the planning department, during the time the FSAR was prepared and submitted.

The Maricopa County Planning Department indicates that the project has been abandoned<sup>(a)</sup>. In conclusion, it appears that the project can be stricken from the record. Section 2.1.3.2-1 has been revised accordingly.

- a. Rengenburg, L., Principal Planner, Maricopa County Planning Department, telephone conversation with Higman, S. L., NUS Corporation, February 20, 1981.

2 | QUESTION 2A.15 (NRC No. 450.1)

2.3

Provide a magnetic tape of hourly meteorological data for the five-year period described in the ER-OL. The data should be in the format described in Appendix A of the Draft of Revision 1 to Regulatory Guide 1.23. The tape should be compatible with IBM computer equipment.

RESPONSE: The tape is being provided under separate cover.

APPENDIX 2B

ANNUAL JOINT FREQUENCY DISTRIBUTIONS  
OF WIND SPEED AND WIND DIRECTION  
BY ATMOSPHERIC STABILITY CLASS  
FOR PVNGS BASED ON 35-FOOT WINDS  
(August 13, 1973 - August 13, 1978)





STABILITY CLASS: A													
ELEVATION: 35 FEET													
DELTA 1 ( 200.0 - 35.0 ) FEET													
DIRECTION	.5-.74	.75-1.5	1.51-2.5	2.51-3.5	3.51-4.5	4.51-5.5	5.51-6.5	6.51-8.5	8.51-11.5	11.51-14.5	14.51-20.5	>20.5	TOTAL
MILES PER HOUR													
N	0	1	0	1	1	1	0	8	9	3	3	0	27
NNE	0	0	2	3	1	5	2	5	4	4	2	0	28
NE	0	0	1	3	3	1	6	5	8	2	3	0	32
ENE	0	0	2	5	7	6	3	4	12	10	7	3	59
E	0	0	1	7	8	13	6	15	28	49	64	12	203
ESE	0	0	4	11	12	15	19	34	29	21	8	3	156
SE	0	0	4	16	12	28	22	29	8	3	2	0	124
SSE	0	1	2	10	13	15	24	32	18	7	3	0	125
S	0	0	3	7	14	23	29	48	32	21	23	3	203
SSW	0	0	1	11	15	18	39	77	137	75	61	15	449
SW	0	0	5	4	4	12	24	101	223	218	182	45	818
WSW	0	0	2	3	4	11	11	59	120	103	57	7	377
W	0	0	3	3	5	5	3	27	60	41	28	3	178
WNW	0	0	0	0	1	2	7	10	17	23	30	18	108
NW	0	1	1	0	2	2	1	5	6	17	20	9	64
NNW	0	0	0	0	0	1	0	9	8	21	24	6	69
VARIABLE	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	0	3	31	84	102	152	196	468	719	618	517	124	3020

PERIODS OF CALM 0 HOURS

STABILITY CLASS: B													
ELEVATION: 35 FEET													
DELTA 1 ( 200.0 - 35.0 ) FEET													
DIRECTION	.5-.74	.75-1.5	1.51-2.5	2.51-3.5	3.51-4.5	4.51-5.5	5.51-6.5	6.51-8.5	8.51-11.5	11.51-14.5	14.51-20.5	>20.5	TOTAL
MILES PER HOUR													
N	0	0	3	5	3	1	4	7	8	4	5	0	40
NNE	0	0	3	1	5	5	1	3	4	5	1	0	28
NE	0	0	1	3	7	12	3	6	4	7	4	0	47
ENE	0	0	1	7	11	17	16	9	13	9	5	3	91
E	0	0	3	20	22	22	19	46	59	53	31	5	280
ESE	0	1	7	20	34	35	43	68	42	17	4	0	271
SE	0	0	7	14	34	44	29	43	12	0	1	3	195
SSE	0	0	8	24	34	41	37	34	18	3	3	2	208
S	0	0	9	17	24	41	44	49	38	14	5	2	245
SSW	0	0	2	7	22	25	30	66	80	27	20	3	282
SW	0	1	0	4	14	23	37	90	127	77	59	8	444
WSW	0	0	1	3	8	13	11	60	106	47	21	0	270
W	0	0	2	2	5	10	13	22	49	27	9	3	142
WNW	0	0	1	1	2	3	2	8	24	18	18	4	61
NW	0	0	1	2	4	3	5	4	7	9	10	0	45
NNW	0	0	0	1	5	2	4	5	10	6	9	2	44
VARIABLE	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	0	2	49	134	240	301	294	520	601	323	205	35	2713

PERIODS OF CALM 0 HOURS

PVNGS ER-OL

APPENDIX 2B

2B-1

STABILITY CLASS: C													
ELEVATION: 35 FEET DELTA 1 ( 200.0 - 35.0 ) FEET													
DIRECTION	.5-.74	.75-1.5	1.51-2.5	2.51-3.5	3.51-4.5	4.51-5.5	5.51-6.5	6.51-8.5	8.51-11.5	11.51-14.5	14.51-20.5	>20.5	TOTAL
MILES PER HOUR													
N	0	0	0	6	6	7	1	6	2	0	1	1	30
NNE	0	0	3	4	7	4	5	6	4	2	0	0	35
NE	0	1	2	6	10	10	7	10	5	4	3	2	60
ENE	0	1	6	13	20	17	10	15	12	9	5	1	109
E	0	1	5	26	30	44	51	45	56	39	23	1	321
ESE	0	2	12	45	46	46	44	52	41	12	2	1	303
SE	0	3	17	38	56	54	32	39	8	5	1	1	254
SSE	0	0	11	27	42	46	45	23	8	1	4	1	208
S	0	0	11	38	49	47	37	37	15	7	4	0	245
SSW	0	0	7	24	32	35	36	78	36	27	15	5	295
SW	0	1	4	4	16	35	40	106	88	50	44	7	395
WSW	0	1	4	5	15	15	18	66	63	28	20	2	237
W	0	0	3	9	8	13	9	24	39	13	13	1	132
WNW	0	0	0	3	9	9	3	16	20	16	12	3	91
NW	0	0	1	3	6	11	10	9	14	16	12	1	83
NNW	0	0	2	4	6	2	6	9	10	5	6	1	51
VARIABLE	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	0	10	88	255	358	395	354	541	421	234	165	28	2849

PERIODS OF CALMS 0 HOURS

STABILITY CLASS: D													
ELEVATION: 35 FEET DELTA 1 ( 200.0 - 35.0 ) FEET													
DIRECTION	.5-.74	.75-1.5	1.51-2.5	2.51-3.5	3.51-4.5	4.51-5.5	5.51-6.5	6.51-8.5	8.51-11.5	11.51-14.5	14.51-20.5	>20.5	TOTAL
MILES PER HOUR													
N	0	14	31	26	11	7	9	11	10	5	5	0	129
NNE	0	10	25	33	32	17	12	13	19	8	5	0	174
NE	1	6	32	65	42	39	23	22	8	6	12	5	261
ENE	2	5	33	80	95	55	38	64	38	17	18	2	447
E	4	26	70	134	143	91	82	134	123	77	52	11	947
ESE	0	13	87	165	158	132	86	112	78	21	11	4	867
SE	2	22	110	178	144	118	57	49	20	9	2	1	712
SSE	0	23	115	136	134	95	48	26	12	7	11	5	612
S	2	22	89	147	124	99	68	40	29	27	29	7	683
SSW	0	16	59	134	119	101	66	94	101	57	92	37	867
SW	0	20	54	110	96	86	63	157	219	139	187	13	1144
WSW	0	10	39	56	61	57	60	110	140	98	81	13	725
W	0	12	23	41	38	36	33	72	101	56	43	5	462
WNW	0	5	21	31	24	29	20	35	41	35	55	21	321
NW	0	6	21	27	14	21	10	27	22	23	28	20	218
NNW	0	13	25	24	16	19	11	13	19	13	13	1	167
VARIABLE	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	11	223	834	1302	1250	1012	644	979	980	598	644	145	8736

PERIODS OF CALMS 7 HOURS

PVNGS ER-OL

APPENDIX 2B

2B-2

STABILITY CLASS: E													
ELEVATION: 35 FEET DELTA T ( 200.0 - 35.0 ) FEET													
DIRECTION	.5-.74	.75-1.5	1.51-2.5	2.51-3.5	3.51-4.5	4.51-5.5	5.51-6.5	6.51-8.5	8.51-11.5	11.51-14.5	14.51-20.5	>20.5	TOTAL
MILES PER HOUR													
N	2	12	44	38	26	15	17	11	15	17	9	0	206
NNE	2	16	25	39	39	30	23	22	22	7	11	1	237
NE	3	14	35	52	46	32	25	23	22	4	9	1	266
ENE	1	15	26	49	37	39	38	52	44	17	3	0	321
E	0	15	25	46	40	41	30	58	74	52	19	3	403
ESE	0	12	33	44	42	34	29	43	53	15	1	1	287
SE	2	7	38	57	29	26	21	38	19	6	9	2	254
SSE	1	8	59	52	55	28	28	22	15	11	9	1	289
S	1	19	52	72	43	48	29	44	31	15	11	0	365
SSW	0	15	49	51	46	61	50	97	119	61	56	6	611
SW	0	19	33	41	54	72	83	190	314	215	120	4	1145
WSW	1	15	38	28	43	49	52	157	280	132	39	3	837
W	2	11	30	32	28	36	48	119	106	49	20	0	481
WNW	0	11	18	23	21	23	20	54	94	57	47	2	370
NW	1	15	26	33	26	21	13	31	49	70	57	8	350
NNW	2	10	32	24	17	16	11	20	24	17	19	0	192
VARIABLE	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	18	214	563	681	592	571	517	981	1261	745	439	32	6614

PERIODS OF CALMS 13 HOURS

STABILITY CLASS: F													
ELEVATION: 35 FEET DELTA T ( 200.0 - 35.0 ) FEET													
DIRECTION	.5-.74	.75-1.5	1.51-2.5	2.51-3.5	3.51-4.5	4.51-5.5	5.51-6.5	6.51-8.5	8.51-11.5	11.51-14.5	14.51-20.5	>20.5	TOTAL
MILES PER HOUR													
N	0	23	71	99	71	54	28	33	23	10	2	0	414
NNE	1	17	66	73	79	68	41	31	19	14	3	0	412
NE	0	14	64	93	67	50	33	32	14	9	1	0	377
ENE	0	8	50	56	55	40	36	34	26	6	0	0	321
E	6	23	51	69	55	50	24	41	30	4	3	1	357
ESE	0	16	56	56	54	37	22	14	9	1	2	1	268
SE	2	18	51	61	33	24	21	20	3	1	1	1	236
SSE	0	21	58	42	39	22	25	18	9	0	0	1	235
S	1	15	51	79	60	38	33	26	10	4	1	0	318
SSW	0	20	42	47	67	45	41	64	67	5	0	0	398
SW	1	14	47	61	63	72	77	167	187	35	1	0	725
WSW	0	22	52	62	66	77	42	106	115	9	0	0	551
W	2	22	50	64	56	58	56	117	71	3	0	0	499
WNW	0	12	40	46	37	42	40	61	40	0	1	0	319
NW	0	22	48	60	45	49	26	51	44	3	1	0	349
NNW	0	17	53	61	67	50	35	42	41	10	1	0	377
VARIABLE	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	13	284	650	1039	914	776	580	857	718	114	17	4	6156

PERIODS OF CALMS 20 HOURS



STABILITY CLASS: G													
ELEVATION: 35 FEET													
DELTA T ( 200.0 - 35.0 ) FEET													
DIRECTION	.5-.74	.75-1.5	1.51-2.5	2.51-3.5	3.51-4.5	4.51-5.5	5.51-6.5	6.51-8.5	8.51-11.5	11.51-14.5	14.51-20.5	>20.5	TOTAL
MILES PER HOUR													
N	5	99	234	394	591	229	144	97	40	9	0	0	1642
NNE	3	75	213	355	422	319	211	158	101	23	5	0	1865
NE	1	59	173	246	200	155	96	75	44	7	2	0	1058
NNE	1	37	115	119	94	56	29	27	7	3	1	0	469
E	2	43	122	130	148	96	54	49	14	1	0	0	659
ESE	3	41	117	121	122	85	35	22	3	0	0	0	549
SE	3	37	76	80	49	35	15	5	1	0	1	0	302
SSE	4	24	77	56	41	31	6	4	1	1	0	0	245
S	5	42	103	185	167	103	50	24	8	0	0	0	627
SSW	4	44	74	73	60	21	10	12	3	1	0	0	302
SW	3	30	71	64	49	24	13	31	23	2	2	0	317
WSW	3	32	97	115	62	44	30	10	5	0	0	0	398
W	3	36	69	79	78	48	32	14	6	0	0	0	385
WNW	5	42	63	74	44	22	16	15	2	0	0	0	303
NW	5	48	140	142	82	56	29	20	6	2	1	0	531
NNW	2	73	197	258	193	130	47	47	11	2	1	0	961
VARIABLE	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	52	762	1981	2496	2202	1454	817	610	275	51	13	0	10713

PERIODS OF CALMS 33 HOURS

STABILITY CLASS: ALL													
ELEVATION: 35 FEET													
DELTA T ( 200.0 - 35.0 ) FEET													
DIRECTION	.5-.74	.75-1.5	1.51-2.5	2.51-3.5	3.51-4.5	4.51-5.5	5.51-6.5	6.51-8.5	8.51-11.5	11.51-14.5	14.51-20.5	>20.5	TOTAL
MILES PER HOUR													
N	7	149	343	569	509	314	203	173	107	48	25	1	2488
NNE	6	118	337	504	585	448	295	238	173	63	27	1	2799
NE	5	94	308	468	375	299	193	173	105	39	34	8	2101
NNE	4	66	233	339	319	230	170	205	152	71	39	9	1837
E	12	108	277	432	446	357	260	388	384	275	192	33	3170
ESE	3	85	316	462	468	384	278	345	235	87	28	10	2701
SE	4	67	303	444	361	333	197	223	71	24	17	8	2077
SSE	5	77	339	351	358	278	213	159	81	30	30	10	1922
S	9	94	316	545	483	399	240	266	163	88	73	12	2746
SSW	4	95	234	347	352	306	272	488	543	253	244	66	3204
SW	4	85	214	297	296	324	337	642	1181	736	595	77	4988
WSW	4	80	233	272	259	266	224	569	829	417	218	25	3395
W	7	81	200	230	218	206	196	395	432	189	113	12	2279
WNW	5	70	163	178	142	130	108	199	238	149	163	48	1593
NW	6	92	238	262	163	163	94	147	148	140	129	38	1640
NNW	4	113	309	372	304	220	114	145	123	74	73	16	1861
VARIABLE	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	94	1498	4396	6076	5658	4657	3450	4956	4965	2683	2000	368	40801

PERIODS OF CALMS 73 HOURS

PVNGS ER-OL

APPENDIX 2B

2B-4

OBSERVATIONS WITH MISSING DATA 2944

TOTAL OBSERVATIONS FOR THE PERIOD ARE 40874

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
7.39	6.64	6.97	21.39	16.21	15.11	26.29



PVNGS ER-OL

APPENDIX 2C

ANNUAL JOINT FREQUENCY DISTRIBUTIONS  
OF WIND SPEED AND WIND DIRECTION  
BY ATMOSPHERIC STABILITY CLASS  
FOR PVNGS BASED ON 200-FOOT WINDS  
(August 13, 1973 - August 13, 1978)





STABILITY CLASS: A													TOTAL
ELEVATION: 200 FEET													
DELTA T ( 200.0 - 35.0 ) FEET													
DIRECTION	.5-.74	.75-1.5	1.51-2.5	2.51-3.5	3.51-4.5	4.51-5.5	5.51-6.5	6.51-8.5	8.51-11.5	11.51-14.5	14.51-20.5	>20.5	
MILES PER HOUR													
N	0	0	1	0	1	1	6	8	6	3	2	28	
NNE	0	0	1	0	4	5	6	11	6	4	0	40	
NE	0	0	2	1	2	2	4	9	6	8	4	40	
ENE	0	0	0	2	4	7	10	7	11	13	4	70	
E	0	1	0	5	11	9	6	10	22	31	72	199	
ESE	0	1	1	4	13	11	13	31	23	27	11	4	
SE	0	0	2	15	12	14	21	26	13	8	3	0	
SSE	0	0	0	7	13	12	15	43	26	11	3	0	
S	0	0	2	7	8	11	27	47	46	26	29	9	
SSW	0	0	1	6	7	7	17	46	124	103	119	39	
SW	0	0	0	1	5	14	12	65	162	174	253	82	
WSW	0	0	1	3	3	3	13	18	77	74	78	23	
W	0	0	1	3	4	1	4	18	41	42	42	16	
WNW	0	0	0	1	2	2	2	7	14	10	37	24	
NW	0	0	1	1	1	1	4	5	5	12	21	20	
NNW	0	1	1	1	1	2	1	5	7	8	29	16	
VARIABLE	0	0	0	0	0	0	0	0	0	0	0	0	
TOTALS	0	3	14	57	91	101	153	344	599	556	725	275	

PERIODS OF CALMS 0 HOURS

STABILITY CLASS: H													TOTAL
ELEVATION: 200 FEET													
DELTA T ( 200.0 - 35.0 ) FEET													
DIRECTION	.5-.74	.75-1.5	1.51-2.5	2.51-3.5	3.51-4.5	4.51-5.5	5.51-6.5	6.51-8.5	8.51-11.5	11.51-14.5	14.51-20.5	>20.5	
MILES PER HOUR													
N	0	0	0	1	3	2	2	6	7	7	4	1	33
NNE	0	0	1	1	5	5	8	4	6	5	6	1	42
NE	0	0	2	6	2	7	14	10	9	5	6	0	61
ENE	0	0	3	6	10	16	7	19	19	9	13	3	105
E	0	0	0	15	13	19	17	60	53	57	41	14	289
ESE	0	1	0	13	23	28	33	51	54	14	4	2	223
SE	0	0	4	15	29	34	35	44	19	6	1	3	190
SSE	0	0	4	9	20	37	40	32	25	4	1	5	177
S	0	0	6	15	22	23	31	61	55	26	7	5	251
SSW	0	0	2	10	21	22	25	57	89	55	25	13	319
SW	0	0	0	7	6	17	25	60	94	86	94	21	410
WSW	0	0	0	2	6	9	18	29	64	64	29	10	231
W	0	0	1	2	2	4	10	17	32	30	23	8	134
WNW	0	0	0	2	1	6	5	4	11	14	27	9	79
NW	0	0	0	2	3	4	5	6	7	5	11	4	47
NNW	0	0	0	2	3	1	5	8	8	9	8	4	48
VARIABLE	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	0	1	23	104	169	239	290	408	552	396	300	103	2639

PERIODS OF CALMS 0 HOURS

STABILITY CLASS: C													
ELEVATION: 200 FEET													
DELTA T ( 200.0 - 35.0) FEET													
DIRECTION	.5-.74	.75-1.5	1.51-2.5	2.51-3.5	3.51-4.5	4.51-5.5	5.51-6.5	6.51-8.5	8.51-11.5	11.51-14.5	14.51-20.5	>20.5	TOTAL
MILES PER HOUR													
N	0	1	2	5	4	9	7	1	5	2	1	2	39
NNE	0	0	4	5	3	8	8	8	5	5	1	0	47
NE	0	1	0	6	13	18	12	10	4	5	4	2	75
ENE	0	0	2	11	15	20	18	22	15	10	8	3	124
E	0	0	7	24	33	32	37	65	64	38	28	10	338
ESE	0	2	2	21	45	54	40	47	31	14	9	3	268
SE	0	0	0	25	37	37	35	49	13	5	3	2	215
SSE	0	0	8	28	31	47	30	51	15	2	2	1	215
S	0	0	5	27	33	33	32	42	29	9	11	1	222
SSW	0	0	6	9	22	40	31	63	60	24	25	15	295
SW	0	0	4	14	10	28	24	73	105	63	55	21	397
WSW	0	0	2	4	10	9	16	42	57	40	25	10	215
W	0	1	1	3	8	13	11	12	29	17	21	4	120
WNW	0	0	0	3	6	2	6	11	15	13	27	9	92
NW	0	0	0	1	5	7	2	16	17	4	8	9	69
NNW	0	0	1	1	7	6	3	6	3	6	10	2	45
VARIABLE	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	0	5	53	187	282	363	312	518	467	257	238	94	2776

PERIODS OF CALMS 0 HOURS

STABILITY CLASS: D													
ELEVATION: 200 FEET													
DELTA T ( 200.0 - 35.0) FEET													
DIRECTION	.5-.74	.75-1.5	1.51-2.5	2.51-3.5	3.51-4.5	4.51-5.5	5.51-6.5	6.51-8.5	8.51-11.5	11.51-14.5	14.51-20.5	>20.5	TOTAL
MILES PER HOUR													
N	0	6	25	27	17	13	10	6	12	5	13	2	136
NNE	2	4	26	41	25	31	16	11	21	9	13	6	205
NE	2	5	22	63	51	46	20	36	21	14	9	13	302
ENE	2	7	35	80	94	63	46	56	51	29	26	18	507
E	3	8	58	121	128	123	98	134	137	93	77	29	1009
ESE	2	11	79	104	133	89	76	121	88	32	21	10	766
SE	2	17	78	114	124	111	85	60	37	16	10	6	660
SSE	1	12	75	106	105	79	51	42	22	9	7	13	522
S	0	8	62	106	114	98	79	62	35	28	36	30	658
SSW	0	13	53	105	89	99	57	93	100	69	87	105	870
SW	0	4	33	82	56	81	73	105	194	153	252	132	1165
WSW	0	6	25	49	48	44	40	76	106	98	107	38	642
W	0	6	27	34	40	28	28	46	65	64	57	32	427
WNW	0	6	19	20	13	16	18	36	36	22	64	65	315
NW	0	5	12	21	15	17	12	16	19	13	27	24	181
NNW	0	3	15	21	18	10	9	18	11	10	11	9	135
VARIABLE	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	14	121	644	1094	1070	953	718	918	955	604	817	532	6500

PERIODS OF CALMS 5 HOURS

PVNGS ER-OL.

APPENDIX 2C

2C-2

STABILITY CLASS: E													
ELEVATION: 200 FEET													
DELTA 1 ( 200.0 - 35.0) FEET													
DIRECTION	.5-.74	.75-1.5	1.51-2.5	2.51-3.5	3.51-4.5	4.51-5.5	5.51-6.5	6.51-8.5	8.51-11.5	11.51-14.5	14.51-20.5	>20.5	TOTAL
MILES PER HOUR													
N	0	3	14	13	17	9	15	15	13	8	28	16	151
NNE	1	8	11	22	17	24	12	23	26	13	25	6	192
NE	0	5	19	34	32	29	24	43	34	15	20	10	269
ENE	3	4	24	24	21	29	33	55	68	36	43	9	349
E	7	6	18	34	42	37	29	63	84	73	82	26	501
ESE	1	7	23	24	27	29	26	36	32	24	30	4	267
SE	1	6	24	30	29	21	15	26	19	21	20	2	214
SSE	1	8	9	28	18	27	18	27	28	12	14	17	207
S	1	8	34	32	29	24	20	47	43	28	26	9	301
SSW	1	6	19	30	26	29	21	55	103	105	163	56	614
SW	0	7	23	27	36	39	50	115	184	258	431	145	1315
WSW	0	7	19	17	15	22	32	75	122	183	232	33	757
W	0	10	14	15	21	13	16	44	74	111	114	17	449
WNW	0	6	16	15	12	11	10	24	43	35	133	59	364
NW	1	3	11	9	12	6	13	30	19	36	93	69	302
NNW	1	4	13	12	8	14	5	12	20	17	15	26	147
VARIABLE	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	14	98	291	374	362	367	339	690	912	975	1469	504	6399

PERIODS OF CALMS 2 HOURS

STABILITY CLASS: F													
ELEVATION: 200 FEET													
DELTA 1 ( 200.0 - 35.0) FEET													
DIRECTION	.5-.74	.75-1.5	1.51-2.5	2.51-3.5	3.51-4.5	4.51-5.5	5.51-6.5	6.51-8.5	8.51-11.5	11.51-14.5	14.51-20.5	>20.5	TOTAL
MILES PER HOUR													
N	0	7	23	25	13	17	17	29	29	19	18	1	198
NNE	2	9	20	31	29	39	25	45	55	34	28	20	337
NE	2	11	20	46	51	70	51	76	46	17	18	12	420
ENE	2	8	25	44	44	38	41	44	56	21	21	8	352
E	2	20	24	43	35	36	45	58	61	42	41	7	414
ESE	0	9	34	27	26	26	25	42	27	18	11	5	250
SE	1	12	23	24	21	21	9	32	14	5	2	1	169
SSE	0	9	22	23	22	16	17	17	20	11	4	2	163
S	0	10	24	22	24	36	24	43	31	20	16	4	258
SSW	0	8	23	30	33	42	33	68	74	64	72	9	461
SW	1	7	22	25	54	40	55	140	207	183	208	13	955
WSW	0	7	20	21	45	24	55	99	140	127	98	3	639
W	1	7	22	30	25	33	28	52	114	100	63	1	476
WNW	0	7	13	12	24	16	14	40	72	57	59	0	319
NW	1	7	22	17	16	17	17	34	56	54	76	7	330
NNW	0	9	13	25	14	22	13	24	33	32	31	4	225
VARIABLE	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	12	147	354	440	476	493	474	852	1035	811	766	47	5966

PERIODS OF CALMS 3 HOURS

PVNGS ER-OL

APPENDIX 2C

2C-3



STABILITY CLASS: G													
ELEVATION: 200 FEET													
DELTA T ( 200.0 - 35.0 ) FEET													
DIRECTION	.5-.74	.75-1.5	1.51-2.5	2.51-3.5	3.51-4.5	4.51-5.5	5.51-6.5	6.51-8.5	8.51-11.5	11.51-14.5	14.51-20.5	>20.5	TOTAL
MILES PER HOUR													
N	1	24	78	122	96	99	68	140	91	30	31	4	784
NNE	10	32	74	103	138	179	153	248	219	72	70	28	1326
NE	9	27	84	151	161	208	203	324	237	83	48	14	1557
ENE	2	20	91	127	134	151	135	184	98	25	31	2	995
E	1	28	102	103	123	110	73	116	55	23	17	3	754
ESE	3	28	76	99	89	59	32	47	21	13	5	1	473
SE	2	21	43	76	56	43	18	22	12	2	1	0	336
SSE	4	28	72	74	58	33	21	17	7	4	0	1	319
S	1	29	74	101	76	50	51	49	22	13	3	0	469
SSW	2	32	81	71	48	48	26	39	34	17	17	1	416
SW	2	23	73	78	77	60	44	75	53	32	25	1	543
WSW	0	20	78	88	69	47	44	75	70	37	5	0	535
W	3	24	61	73	55	42	37	60	68	32	7	0	462
WNW	1	17	42	50	53	31	24	37	40	22	4	2	323
NW	0	24	63	71	72	49	40	78	73	52	29	2	553
NNW	2	20	55	91	80	67	53	114	99	44	26	2	653
VARIABLE	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	43	397	1191	1473	1385	1278	1022	1625	1199	501	319	65	10498

PERIODS OF CALMS 1A HOURS

STABILITY CLASS: ALL													
ELEVATION: 200 FEET													
DELTA T ( 200.0 - 35.0 ) FEET													
DIRECTION	.5-.74	.75-1.5	1.51-2.5	2.51-3.5	3.51-4.5	4.51-5.5	5.51-6.5	6.51-8.5	8.51-11.5	11.51-14.5	14.51-20.5	>20.5	TOTAL
MILES PER HOUR													
N	1	41	143	193	151	149	120	203	165	77	98	28	1369
NNE	15	53	137	203	221	293	227	345	343	144	147	61	2189
NE	13	49	153	311	312	340	326	503	360	145	113	59	2724
ENE	9	39	140	289	322	324	290	387	318	142	155	47	2502
E	13	63	204	345	385	366	305	506	476	357	358	121	3504
ESE	6	59	215	296	356	296	245	375	276	142	91	29	2386
SE	6	56	223	303	304	283	218	259	127	63	40	14	1900
SSE	4	57	144	275	267	251	192	229	143	53	31	39	1733
S	2	55	211	314	306	275	264	351	261	150	128	58	2371
SSW	3	59	185	261	246	247	210	421	584	442	508	238	3444
SW	3	41	155	234	244	279	283	633	999	949	1318	415	5553
WSW	0	40	145	184	196	165	218	414	636	623	574	117	3312
W	4	48	127	160	155	139	134	249	423	396	327	78	2240
WNW	1	36	90	103	111	84	84	159	231	173	351	168	1591
NW	2	39	109	122	124	101	93	189	196	178	265	135	1553
NNW	3	37	98	153	131	122	89	192	141	126	130	63	1325
VARIABLE	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	87	772	2570	3742	3435	3794	3298	5415	5719	4160	4634	1670	34696

PERIODS OF CALMS 2A HOURS

PVNGS ER-OL

APPENDIX 2C

2C-4

OBSERVATIONS WITH MISSING DATA 4094

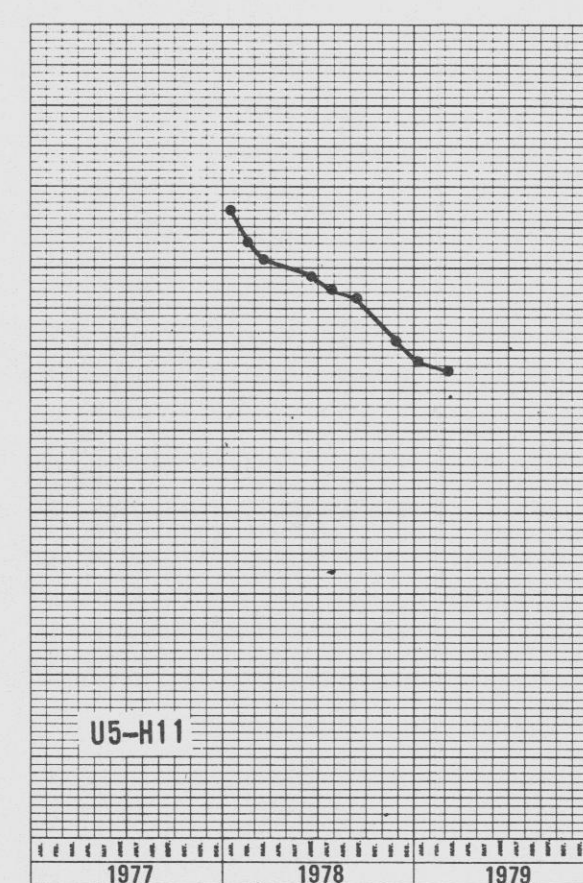
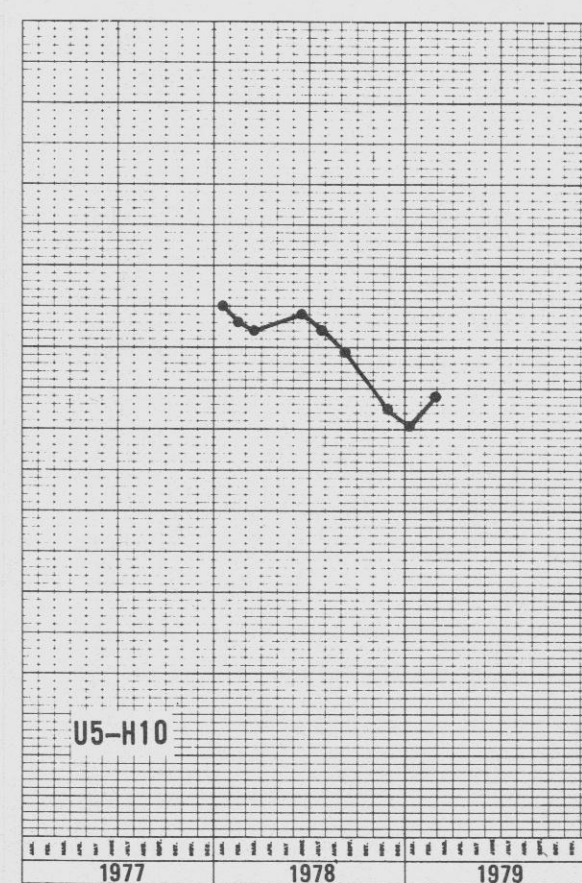
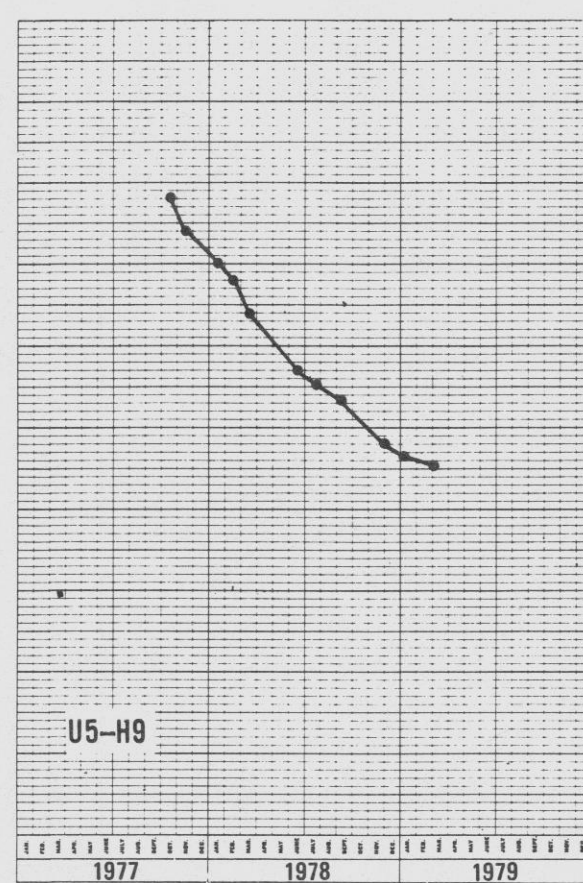
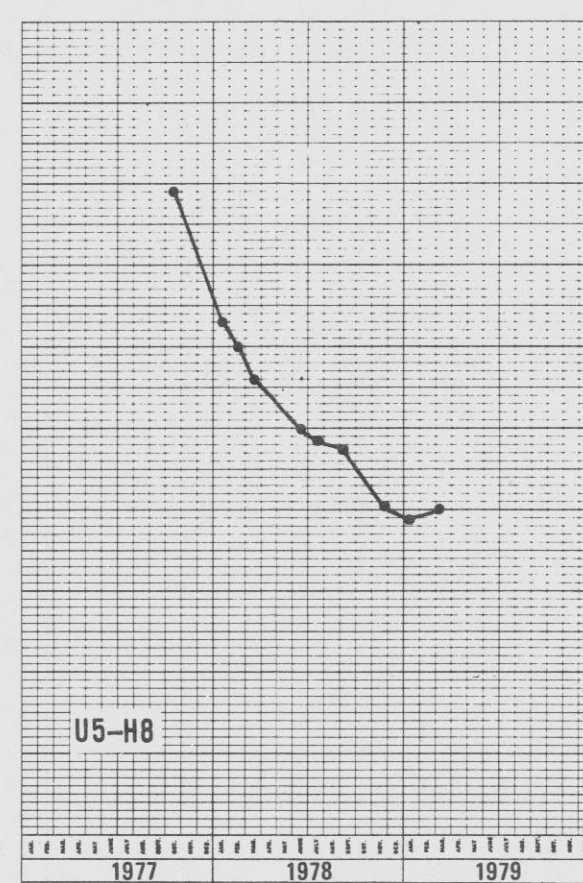
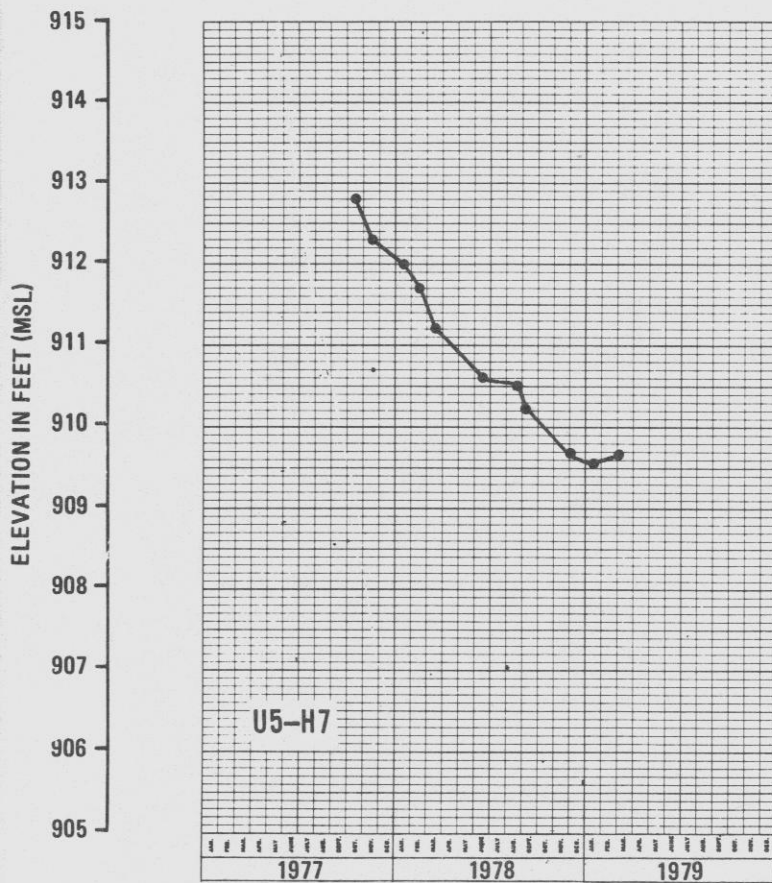
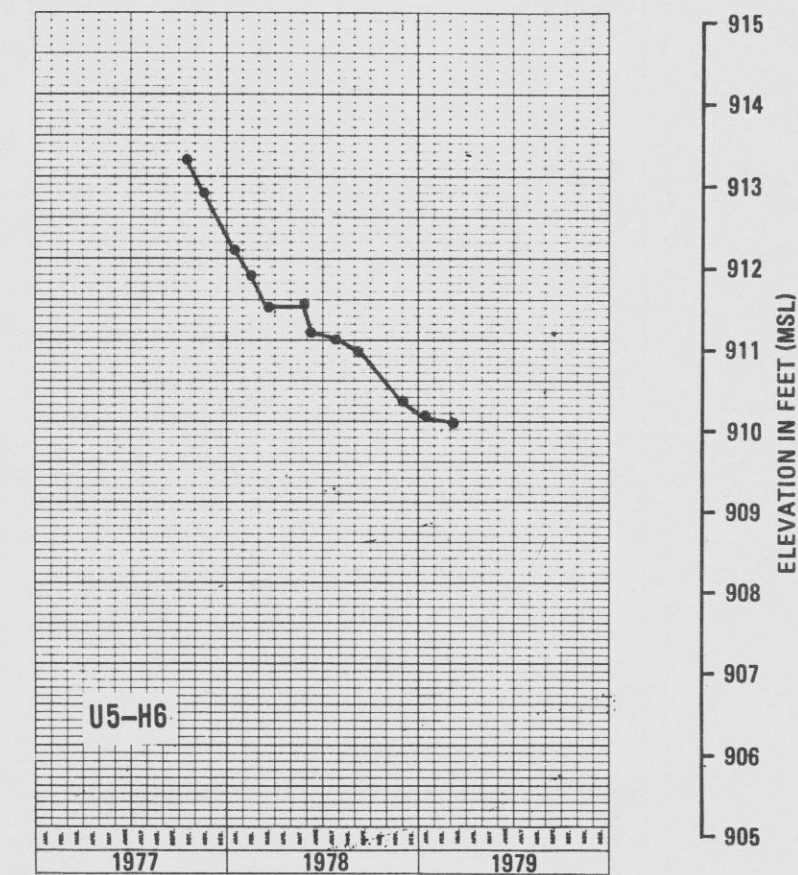
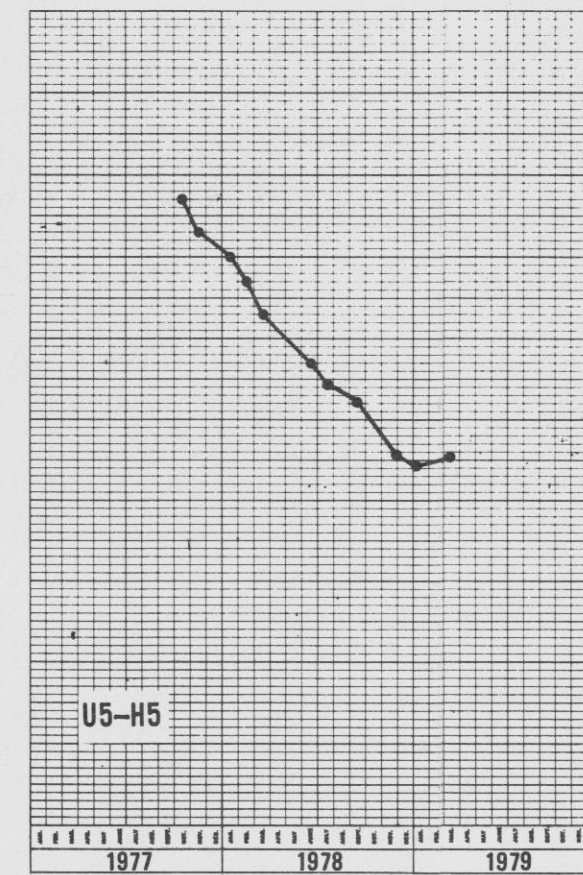
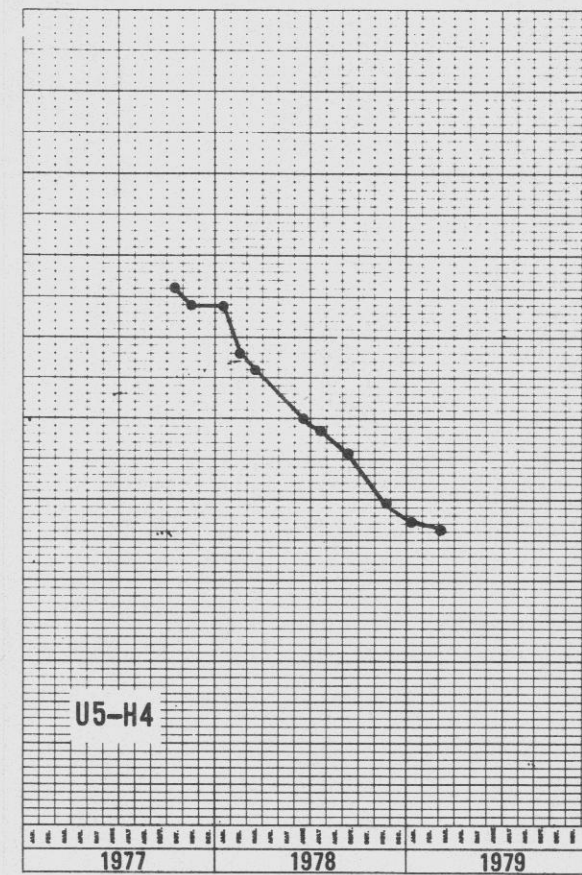
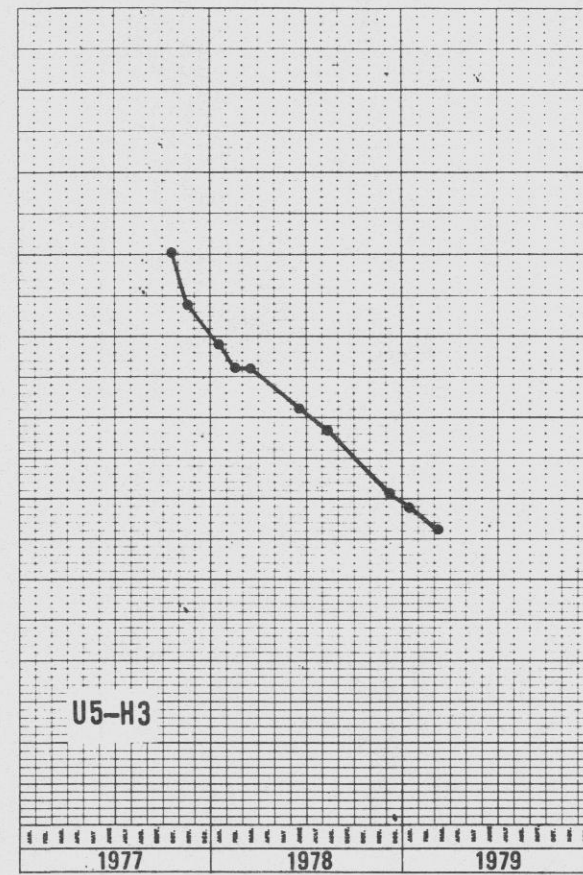
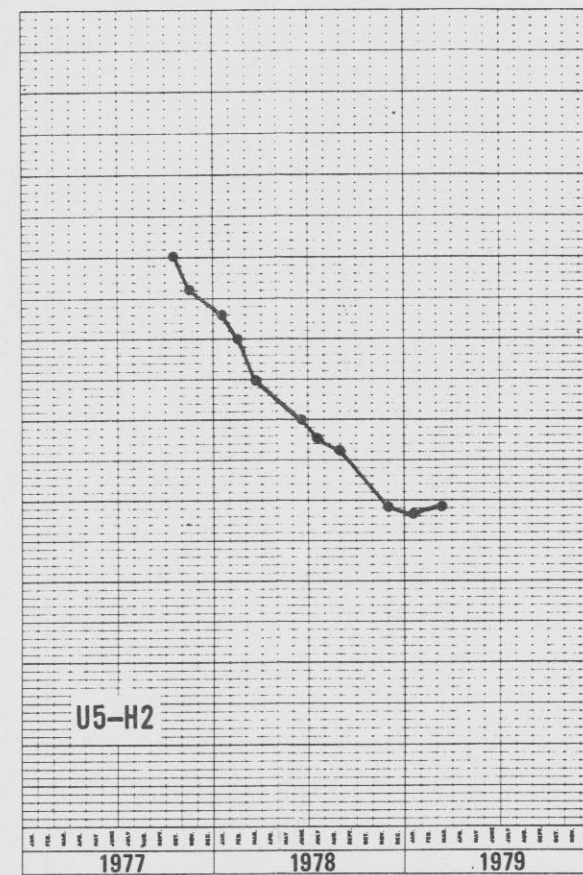
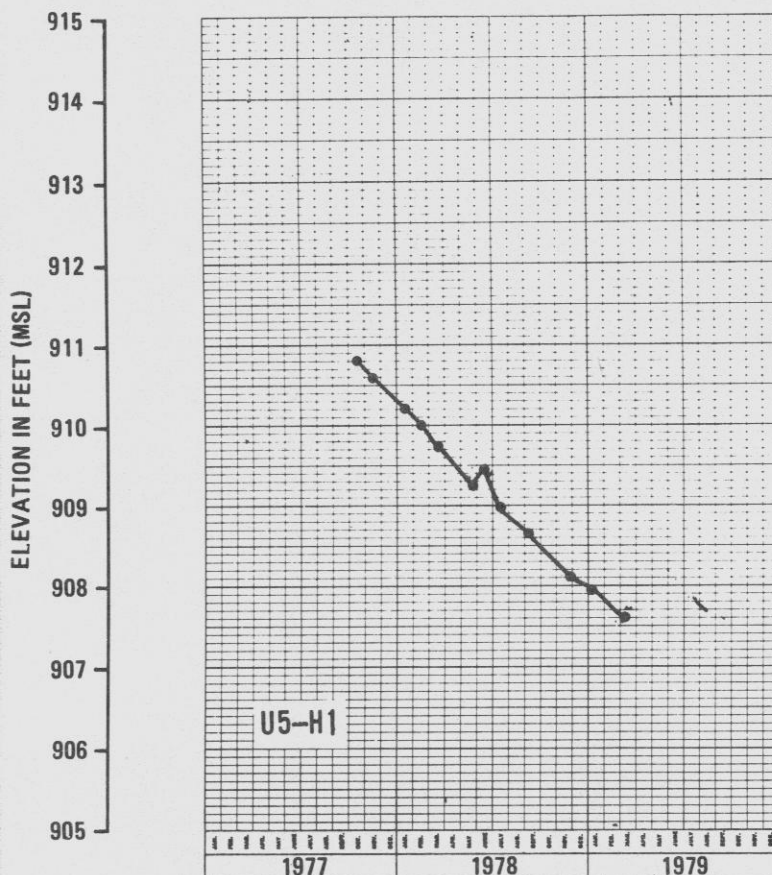
TOTAL OBSERVATIONS FOR THE PERIOD ARE 34724

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
7.35	6.64	6.99	21.41	16.11	15.03	26.47








ELEVATION IN FEET (MSL)

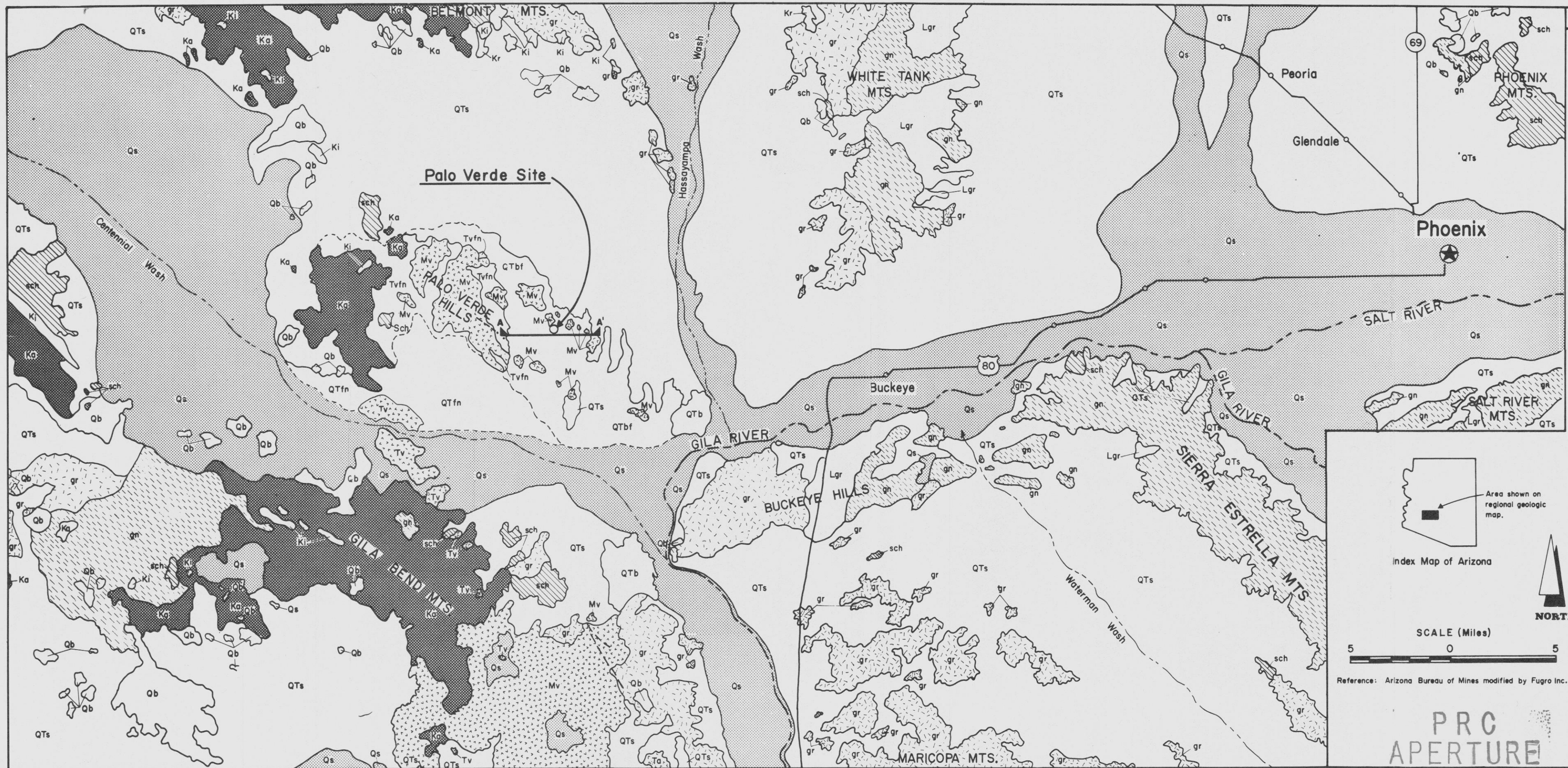
PRC  
APERTURE  
CARD

 **Palo Verde Nuclear Generating Station**  
**ER-OL**

HYDROGRAPHS OF OBSERVATION WELLS  
IN THE PERCHED-WATER ZONE  
(Sheet 5 of 5)  
Figure 2.4-7

8307290152-65





**LEGEND**

**LITHOLOGY**

Quaternary	Qs	Silt, sand and gravel.
	Qb	Basalt includes tuff and gravel.
Quat-Tert.	QTs	Sand, gravel and conglomerate.
	Qtb	Basalt flow.
	QTbf	Differentiated fanglomerate. Basin fill deposit.
	Tvfn	Volcanic fan deposit.
Tertiary	Mv	Miocene undifferentiated volcanics.
	Tv	Undifferentiated volcanics.
	Ta	Andesite.
Laramide	Lgr	Granite and related crystalline rocks.
	Ka	Andesite includes tuff and agglomerate.
Cretaceous	Ki	Dikes and plugs.
	Kr	Rhyolite.
	sch	Schist includes diorite, rhyolite and greenstone.
P.C.	gr	Granite and related crystalline rocks.
	gn	Granitic gneiss.

**SYMBOLS**

Fault:	Dotted where concealed.
	Dashed where inferred.
Geologic contact: Dashed where approximate.	
A	Section
A	Location

Index Map of Arizona

SCALE (Miles)

NORTH

Reference: Arizona Bureau of Mines modified by Fugro Inc.

Palo Verde Nuclear Generating Station  
ER-OL

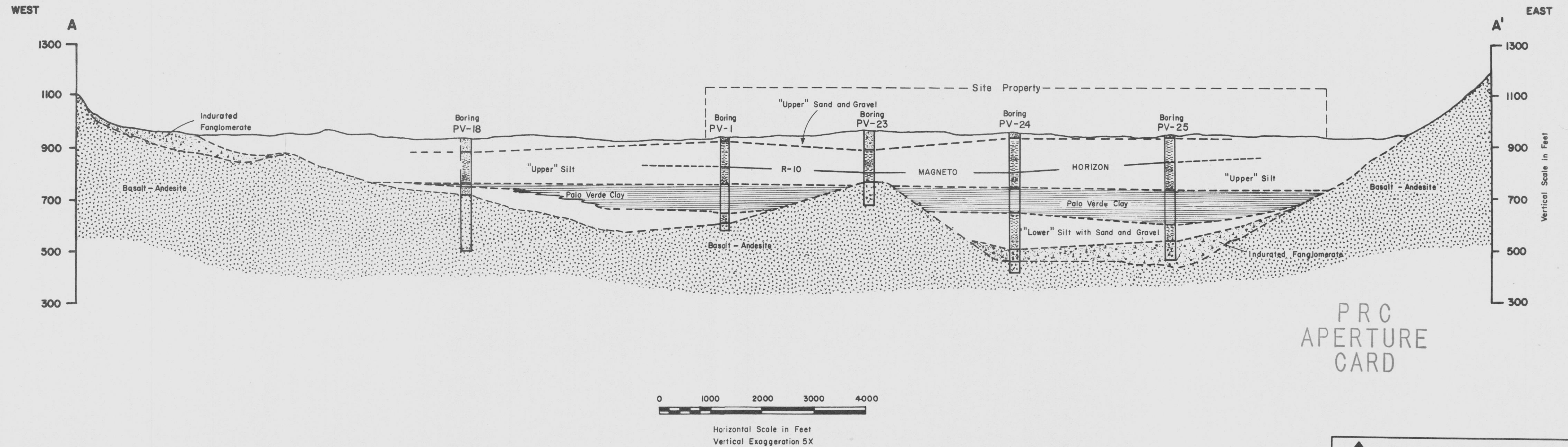
REGIONAL GEOLOGIC MAP  
Figure 2.5-1

PRC  
APERTURE  
CARD


8307290153-66



# Geologic Section Across Palo Verde Site

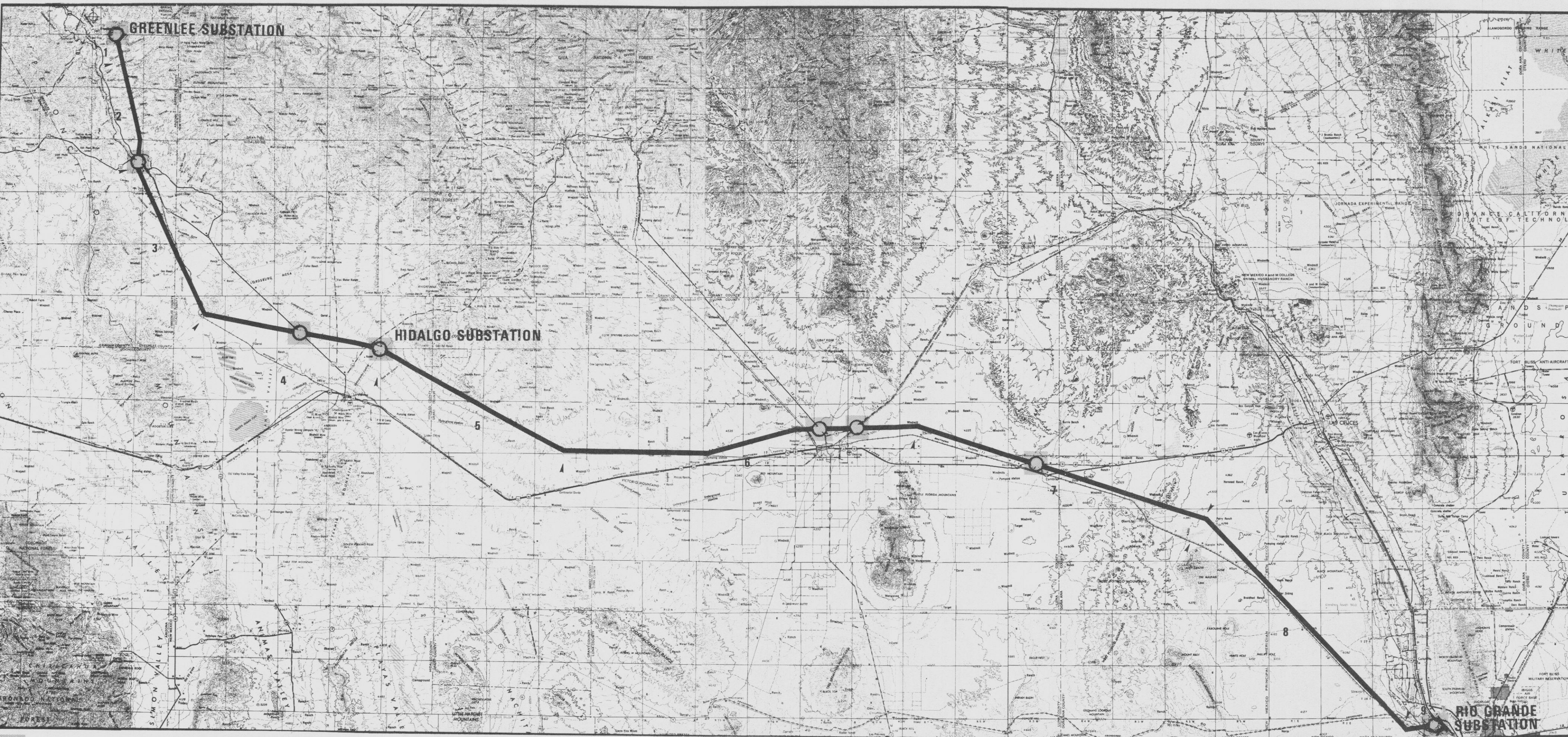


PRC  
APERTURE  
CARD

	Palo Verde Nuclear Generating Station ER-OL
	GEOLOGIC SECTION Figure 2.5-2

8307290153-67





# PRC APERTURE CARD

LEGEND  
○ POTENTIAL ACCESS POINTS



5 0 5 10 15 20 MI  
SCALE



Palo Verde Nuclear Generating Station  
ER-OL

TRANSMISSION LINE ROUTE  
PROJECT 3

Figure 3.9-2

CHANGE

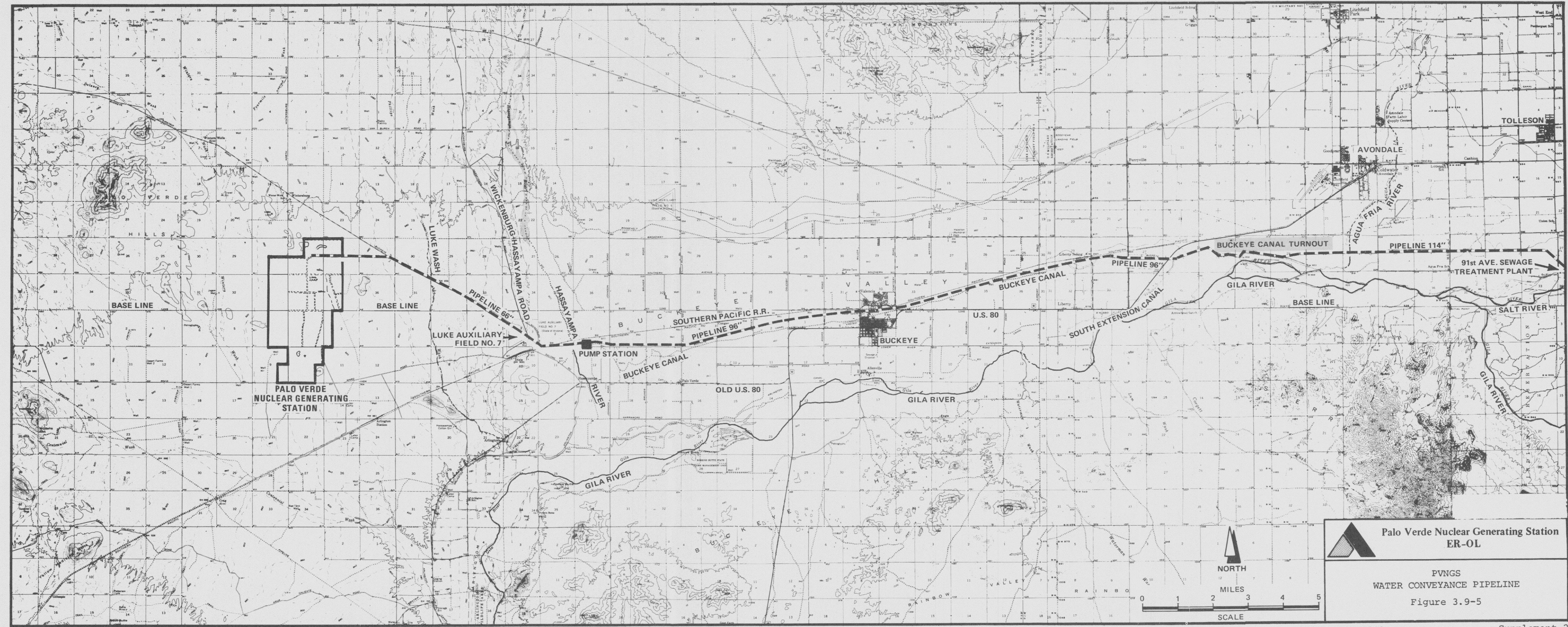
March 1981

Supplement 2

8307290153-68



# PRC APERTURE CARD



Palo Verde Nuclear Generating Station  
ER-OL

PVNGS  
WATER CONVEYANCE PIPELINE  
Figure 3.9-5

8307290153-69



Table 5B-1

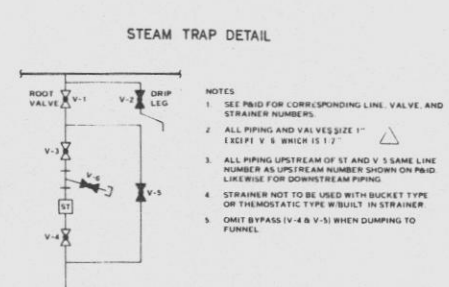
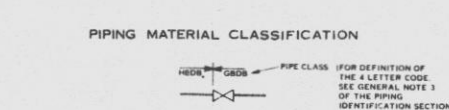
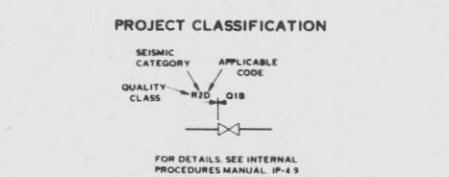
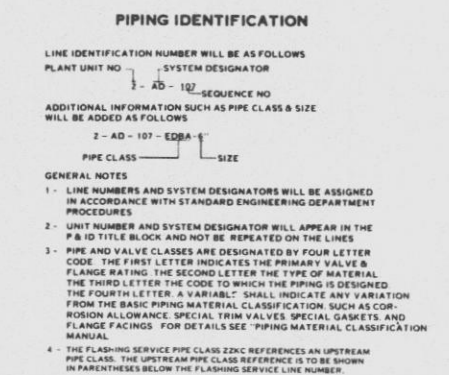
MAXIMUM INDIVIDUAL DOSES FROM  
RADIOIODINES AND PARTICULATES  
(mrem/yr)PRC  
APERTURE  
CARD

Pathway	Location A <sup>(a)</sup>									Location B <sup>(b)</sup>								
	Dose from Unit 1 Release			Dose from Unit 2 Release			Dose from Unit 3 Release			Dose from Unit 1 Release			Dose from Unit 2 Release			Dose from Unit 3 Release		
	Total Body	Bone	Thyroid	Total Body	Bone	Thyroid	Total Body	Bone	Thyroid	Total Body	Bone	Thyroid	Total Body	Bone	Thyroid	Total Body	Bone	Thyroid
Adult																		
Ground Plane	3.28(-3)	3.28(-3)	3.28(-3)	2.65(-3)	2.65(-3)	2.65(-3)	2.32(-3)	2.32(-3)	2.32(-3)	6.82(-4)	6.82(-4)	6.82(-4)	7.79(-4)	7.79(-4)	7.79(-4)	9.01(-4)	9.01(-4)	9.01(-4)
Vegetable Ingestion	8.46(-1)	1.17	1.02	7.48(-1)	1.03	8.90(-1)	7.27(-1)	1.00	8.52(-1)	6.14(-1)	8.96(-1)	6.54(-1)	6.67(-1)	9.76(-1)	7.13(-1)	7.32(-1)	1.07	7.85(-1)
Inhalation	1.57(-1)	4.14(-4)	2.82(-1)	1.39(-1)	3.62(-4)	2.48(-1)	1.34(-1)	3.49(-4)	2.40(-1)	1.19(-1)	2.98(-4)	2.10(-1)	1.30(-1)	3.26(-4)	2.29(-1)	1.42(-1)	3.59(-4)	2.51(-1)
Total	1.01	1.17	1.31	8.90(-1)	1.03	1.14	8.63(-1)	1.00	1.09	7.34(-1)	8.97(-1)	8.65(-1)	7.98(-1)	9.77(-1)	9.43(-1)	8.75(-1)	1.07	1.04
Teenager																		
Ground Plane	3.28(-3)	3.28(-3)	3.28(-3)	2.65(-3)	2.65(-3)	2.65(-3)	2.32(-3)	2.32(-3)	2.32(-3)	6.82(-4)	6.82(-4)	6.82(-4)	7.79(-4)	7.79(-4)	7.79(-4)	9.01(-4)	9.01(-4)	9.01(-4)
Vegetable Ingestion	1.06	1.90	1.21	9.42(-1)	1.67	1.06	9.16(-1)	1.62	1.02(-1)	7.73(-1)	1.45	8.06(-1)	8.41(-1)	1.58	8.78(-1)	9.22(-1)	1.73	9.66(-1)
Inhalation	1.58(-1)	5.62(-4)	3.14(-1)	1.39(-1)	4.92(-4)	2.75(-1)	1.35(-1)	4.74(-4)	2.67(-1)	1.20(-1)	4.05(-4)	2.33(-1)	1.31(-1)	4.43(-4)	2.54(-1)	1.43(-1)	4.88(-4)	2.79(-1)
Total	1.22	1.90	1.53	1.08	1.67	1.34	1.05	1.62	1.29	8.94(-1)	1.45	1.04	9.73(-1)	1.58	1.13	1.07	1.73	1.25
Child																		
Ground Plane	3.28(-3)	3.28(-3)	3.28(-3)	2.65(-3)	2.65(-3)	2.65(-3)	2.32(-3)	2.32(-3)	2.32(-3)	6.82(-4)	6.82(-4)	6.82(-4)	7.79(-4)	7.79(-4)	7.79(-4)	9.01(-4)	9.01(-4)	9.01(-4)
Vegetable Ingestion	1.93	4.57	2.15	1.71	4.03	1.89	1.66	3.91	1.82	1.40	3.50	1.45	1.53	3.81	1.58	1.67	4.18	1.74
Inhalation	1.40(-1)	7.34(-4)	3.16(-1)	1.23(-1)	6.43(-1)	2.78(-1)	1.20(-1)	6.19(-4)	2.69(-1)	1.06(-1)	5.29(-4)	2.34(-1)	1.15(-1)	5.79(-4)	2.56(-1)	1.27(-1)	6.38(-4)	2.81(-1)
Total	2.07	4.57	2.47	1.84	4.03	2.17	1.78	3.91	2.09	1.51	3.50	1.69	1.65	3.81	1.84	1.80	4.18	2.02
Infant																		
Ground Plane	3.28(-3)	3.28(-3)	3.28(-3)	2.65(-3)	2.65(-3)	2.65(-3)	2.32(-3)	2.32(-3)	2.32(-3)	6.82(-4)	6.82(-4)	6.82(-4)	7.79(-4)	7.79(-4)	7.79(-4)	9.01(-4)	9.01(-4)	9.01(-4)
Vegetable Ingestion	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)
Inhalation	8.06(-2)	5.37(-4)	2.42(-1)	7.09(-2)	4.70(-4)	2.12(-1)	6.89(-2)	4.53(-4)	2.05(-1)	6.11(-2)	3.88(-4)	1.73(-1)	6.64(-2)	4.24(-4)	1.95(-1)	7.28(-2)	4.67(-4)	2.14(-1)
Total	8.39(-2)	3.82(-3)	2.45(-1)	7.36(-2)	3.12(-3)	2.15(-1)	7.12(-2)	2.77(-3)	2.07(-1)	6.18(-2)	1.07(-3)	1.73(-1)	6.72(-2)	1.20(-3)	1.96(-1)	7.37(-2)	1.37(-3)	2.14(-1)

- a. Location A is 2300 meters north of Unit 1, 2600 meters north of Unit 2, and 3000 meters north of Unit 3.  
b. Location B is 5500 meters south-southwest of Unit 1, 5100 meters SSW of Unit 2 and 4700 meters SSW of Unit 3.  
c. Pathway not applicable.

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